JANUARY, 1951

American Engineer

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IN THIS ISSUE . . .

ENGINEERS AND BIG BUSINESS

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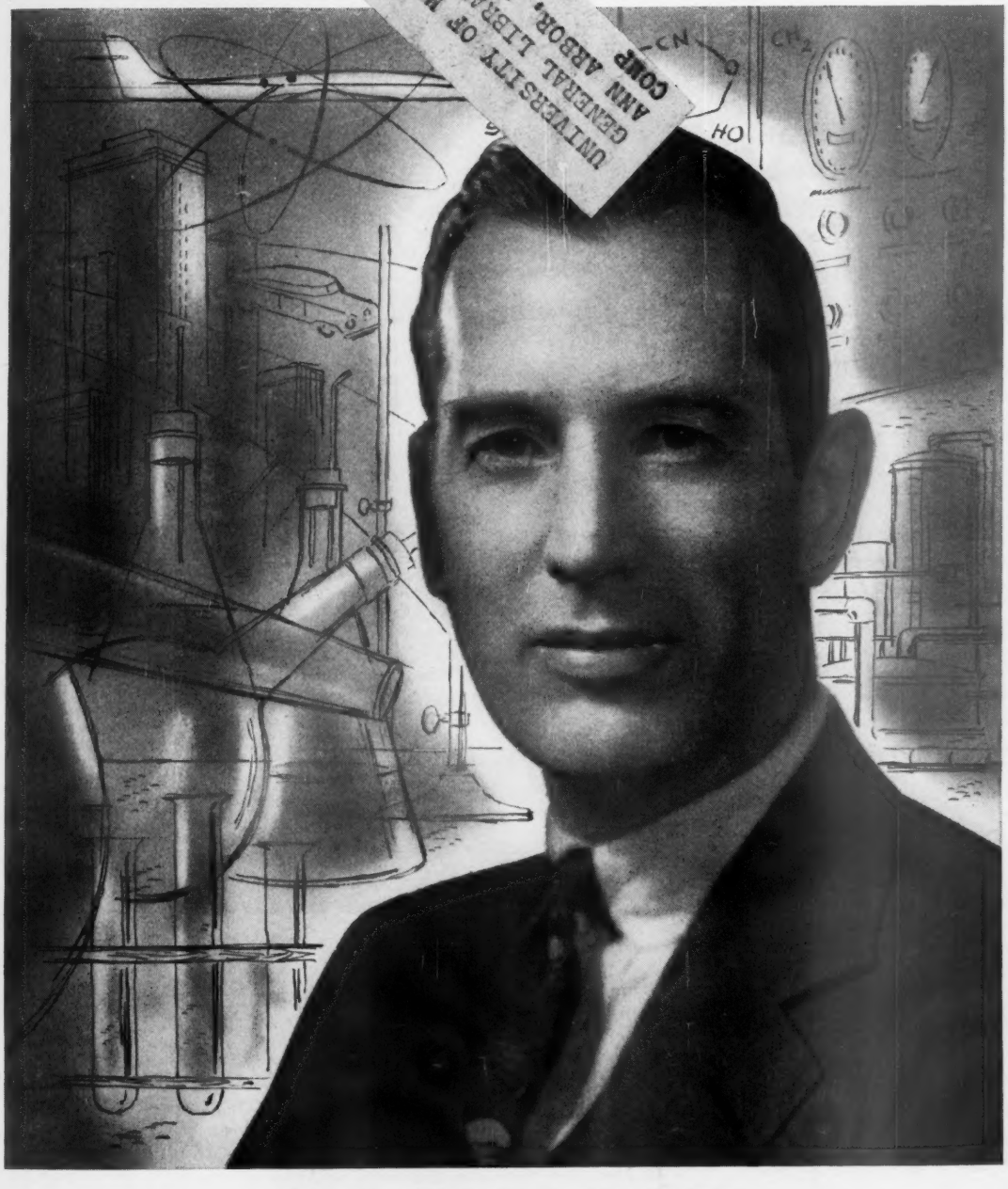

ENGINEER CRAWFORD H. GREENEWALT
Du Pont's President Tells Why Industry Must Be Big

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American Engineer

JANUARY 1951

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Advertising Representatives:
William R. Stewart, 9 S. Clinton St., Chicago 6, Ill.
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NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS FOUNDED 1934

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Publications Committee, NSPE
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Chairman

"Trained and inspired leadership is needed in the troubled world of today. We live in uncertainty and fear. The times call for thinking and straight thinking — one of the goals of true education. Unfortunately, the world so clamors for action that men and women devote little time to thinking. They find it easier to ascertain and adopt the thoughts of others than to think for themselves."

—JAMES F. BYRNES,
Former Secretary of State

The American Engineer is published monthly by the National Society of Professional Engineers, 1121 15th St., N. W., Washington 5, D. C. Entered as Second Class Matter Feb. 8, 1948, at the Post Office, Washington, D. C., under act of March 3, 1879. Copyright, 1950, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $2 per year in advance to members of NSPE and its Affiliated Societies; $3 per year in advance to non-members in U. S. A. and its possessions, Canada, and Mexico. Foreign, $4 per year. Single copy, 35c.

EDITORIALS

A Matter of Ethics . . .

A resolution adopted in December of last year by the Seattle Chapter of the Washington Society of Professional Engineers, is one that reflects credit upon that organization, the National Society, and the engineering profession. The widely publicized resolution was inspired when members of the Chapter discovered that local interested individuals were attempting to raise money to publicize and promote certain bond issues that would have called for the construction of public buildings. The bond issues were to be submitted to the voters at a general election and if approved, the construction industry and members of the architectural and engineering professions would have been favored with ensuing contracts and engagements for services.

The Seattle Chapter did not question the merits of the bond issue, but, as they stated in their adopted resolution, "the Chapter is perturbed by the discriminatory method employed in soliciting contributions from selected members of the engineering profession by allocation of quotas, because professional ethics require an engineer to offer his services on the basis of his ability and experience, and requires him not to solicit business by making contributions to campaign funds or by offering other monetary inducements . . ."

The Seattle Chapter, of course, was completely justified in acting as it did. High-sounding phrases proclaiming ethical standards, golden platitudes that tell the public of our character and integrity, are not enough. It's the old story of actions speaking louder than words. We are certain that the courageous move of the Washington engineers will endear to them the respect and kind thoughts of untold numbers of citizens of that State.

The Public Relations Fund . . .

The public relations fund-raising campaign has just entered its second month. From the time the first mailer was sent to members in Mid-November announcing the program, the response from the membership has been both gratifying and enlightening. Officials close to the fund-raising drive were deluged with letters commending the action. They were not merely communications transmitting money for some ordinary purpose, but they were inspiring letters filled with excellent ideas and thoughts. If anyone harbors the notion that the professional engineer is completely ignorant of the value of public relations activities, let him read some of the material that NSPE members have written on the subject of late.

The inspiration derived from this reaction among the membership is, of course, encouraging, but what is more important is to be convinced that NSPE members know what public relations is, and know what kind of public relations they as a professional group want. There have been misunderstandings. These misunderstandings have been cleared up in the main, by direct correspondence between NSPE officers and the individuals concerned. For those who still feel that some phases of the prospective program are not what they should be, it is hoped they will follow news stories in this and future issues of the AMERICAN ENGINEER concerning the activity, or will write officials of the Society for additional information.

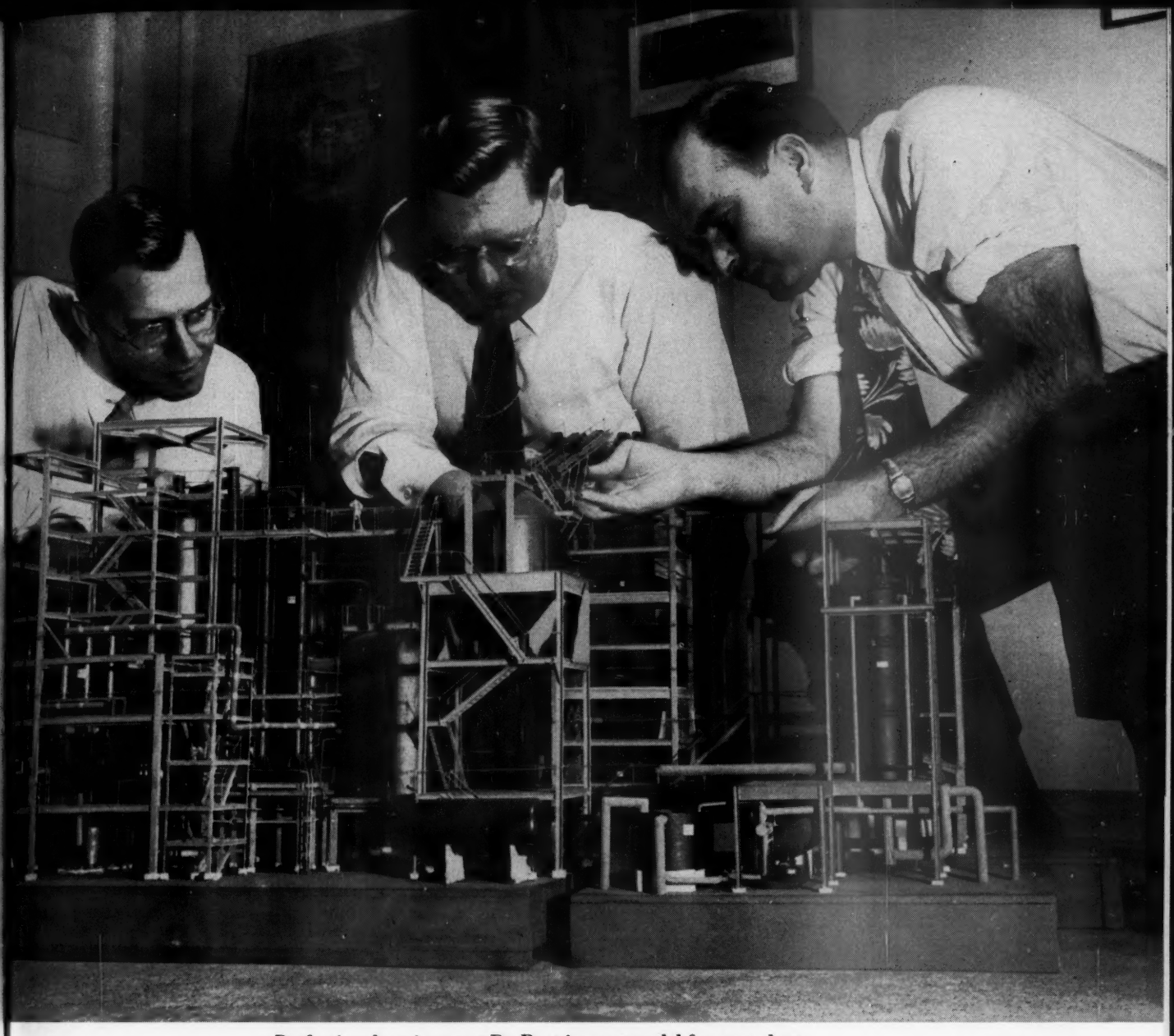
The initial folder soliciting funds had as its theme, "Which Road Do We Take?" From the response thus far it is clear that NSPE's members know the road they want to take, and in which direction they as a profession want to travel.

New School at MIT . . .

It was recently announced that the Massachusetts Institute of Technology will establish a new school of Industrial Management with a $5,250,000 gift from the Alfred P. Sloan Foundation, thus following the lead of other educational institutions. In releasing the information, Dr. Karl T. Compton, Chairman of the Institute's Corporation, said that the move makes great progress toward offering future industrial executives a correlated program in industrial problems as well as in science, engineering and research. Mr. Sloan, who was graduated from M. I. T. in 1895, and who is Chairman of the Board of the General Motors Corporation, said at the time the gift was made that his "many years of service with General Motors had convinced him that executives with science and engineering training had been unusually well-qualified to deal with industrial problems in technical enterprises."

The establishment of this school at such an outstanding institution as M. I. T., is of great importance to the engineering profession. It will add impetus to the growing practice of utilizing the properly trained professional engineer as an executive. As Mr. Sloan points out, and he is joined in his thoughts by many of America's great industrial leaders, that the engineer, for many reasons including his unique training, is often extremely well-qualified to become an executive. Those who do not rise to such positions may have done so if in their younger years they had had the advantages of such training as that recently established at the Massachusetts school.

In view of our present international situation, the Sloan gift takes on even greater importance. With an intensified security program ahead, American industry will again be called upon to perform new miracles. Production will be the key-note and management determines the effectiveness of production. Let us hope that the new school and those that will undoubtedly be established in the future, can help our professional engineers do an even more outstanding job in industry.



Professional engineers at Du Pont inspect model for new plant.

ENGINEERS AND BIG BUSINESS

By Crawford H. Greenewalt, Chem. E.

President, E. I. Du Pont De Nemours and Co.

We have heard much recently—although I might say that the present emergency has stilled some of the criticism—on a very controversial subject grouped under the heading of "big business." Just why it has become so controversial has puzzled many of us, but nevertheless the disagreement is there. And because so many professional engineers spend their careers with large concerns, and, of course, contribute so much toward making any business big, I think it behooves them to fully understand the pros and cons we hear so much about.

First, I think we can all get together on the desire for economic progress. We all want a stronger America—a more prosperous America—an ever better place in which to live. We have won for ourselves the highest living standard in the world, and the benefits of our economy are spread among all our people, perhaps not so widely as we would like, but nevertheless more widely than in any other country.

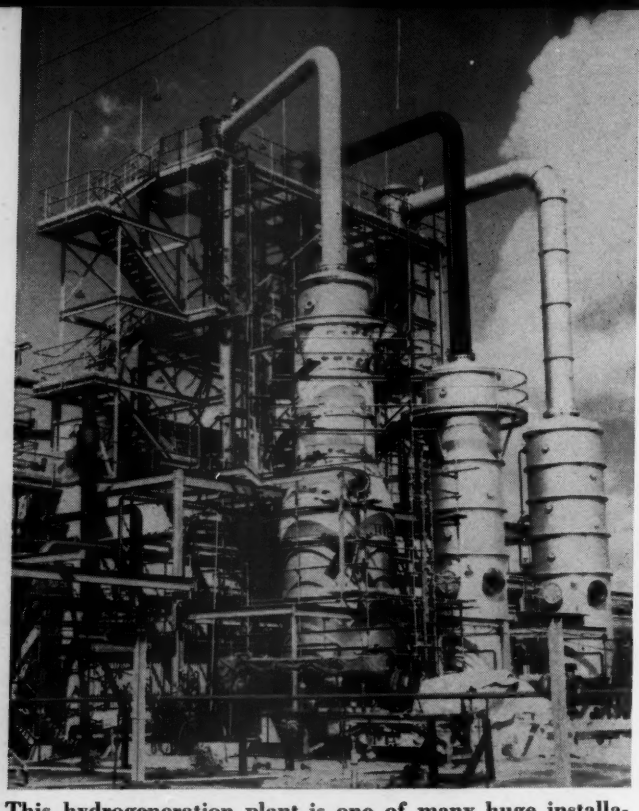
As a nation we are not content to stay put. We are eager to push ahead—to reach ever higher—to spread the benefits of our productive genius ever farther.

The quarrel comes not in what we want to accomplish but how best we can get at it.

That is where the problem of bigness in business first rears its head. We have big business—we have always had it.

But many people now seem to regard big business as in some way inimical to the public interest. They look upon large corporations as "monopolies," "concentrations of economic power," selfish and heartless, seeking economic aggrandizement for themselves at the expense of the rest of the people. Believing that, it is a natural consequence to favor the use of political power to restrict corporate activities, to bring their operations under the control of the government, and in some cases to break them up.

Any one who has studied the economic problems of the



This hydrogeneration plant is one of many huge installations that make Du Pont "big."

nation must know that these premises are wrong. A business, whether it be big or little, to be successful must serve the public interest; and if a business grows it does so because the quality and price of its products win public confidence. Its ultimate size is then dictated only by the aggregate demand of its satisfied customers. There is a clear difference between protecting competition and protecting competitors, and true and lasting economic progress lies in encouraging the most efficient producers so that all people may have more and better things for their money.

ACTUALLY growth in an industrial enterprise has only one connotation—and that is success in pleasing three groups of people—its customers, its employees, and its stockholders. That is no easy task. The record also shows that there is nothing static in that success once it is achieved. If you will look at the lists of the largest industrial corporations in this country year by year since the beginning of the century you will see that success in business, as in any other endeavor, is indeed a fugitive thing. Most of us have forgotten that some of the leaders of a generation ago ever existed, and that is because the decision that led to their downfall or shrinkage was taken, not by government, but by the most powerful body in this country—the customers with dollars in their hot hands searching eternally for lower costs and better quality.

The Du Pont Company *is* successful and it *is* big, and in saying that I am merely reciting cause and effect. Those of us who are responsible for its management are thoroughly and painfully aware that that success comes about through public acceptance of the goods and services we offer. Should we ever fail in maintaining that acceptance, we will lose business and someone else will gain it. And that will bring about a breakup of what has been called the "Du Pont industrial empire" far more quickly and far more devastatingly than any outside attack.

"Monopoly" is a word in the glossary of modern terminology which is much used, and much abused. We now have a legal interpretation that says "monopoly" is the manufacture of a large share of any product by any one company regardless of how competitive that product may be with other materials doing the same job. To add to the legal confusion, the word "share" appears to mean anything between 30% and 100% depending upon circumstances which are also as yet undefined.

The political interpretation of "monopoly" seems to be that anyone who is big has it, and very recently we have been given the concept that if as many as three or four companies have a majority of a market they are said to be monopolists, or "oligopolists" as the erudite call it, regardless of how intense the competition be between them.

Actually monopoly means "one seller," and the test of monopoly is whether the buyer of any article has freedom of choice in fulfilling his requirements. If he can make his purchase from only one source, then a monopoly exists, even though that monopoly may be a perfectly legal one, such as the purchase of electric power in many of our communities. But if he can select from among several materials, each of which will to a greater or less extent relieve his need, then no monopoly in any real sense exists. The choice becomes that of the customer and he can buy or refuse to buy without compulsion and according to his best judgment.

The term "monopoly" has also been given the implication that it is intended to smother or to exclude competition. The chemical industry is popularly depicted as a haven of monopoly, yet it is in fact one of the most competitive industries in the world.

There are something like 9,000 companies engaged in the manufacture of what the Census Bureau describes as "chemical and allied products." As a corporation, the Du Pont Company is the largest of these and has roughly 8% of the trade in this segment of American industry. Individually, however, few of our products lead their fields. In most instances our leading competitors are more important factors than we in many of our markets.

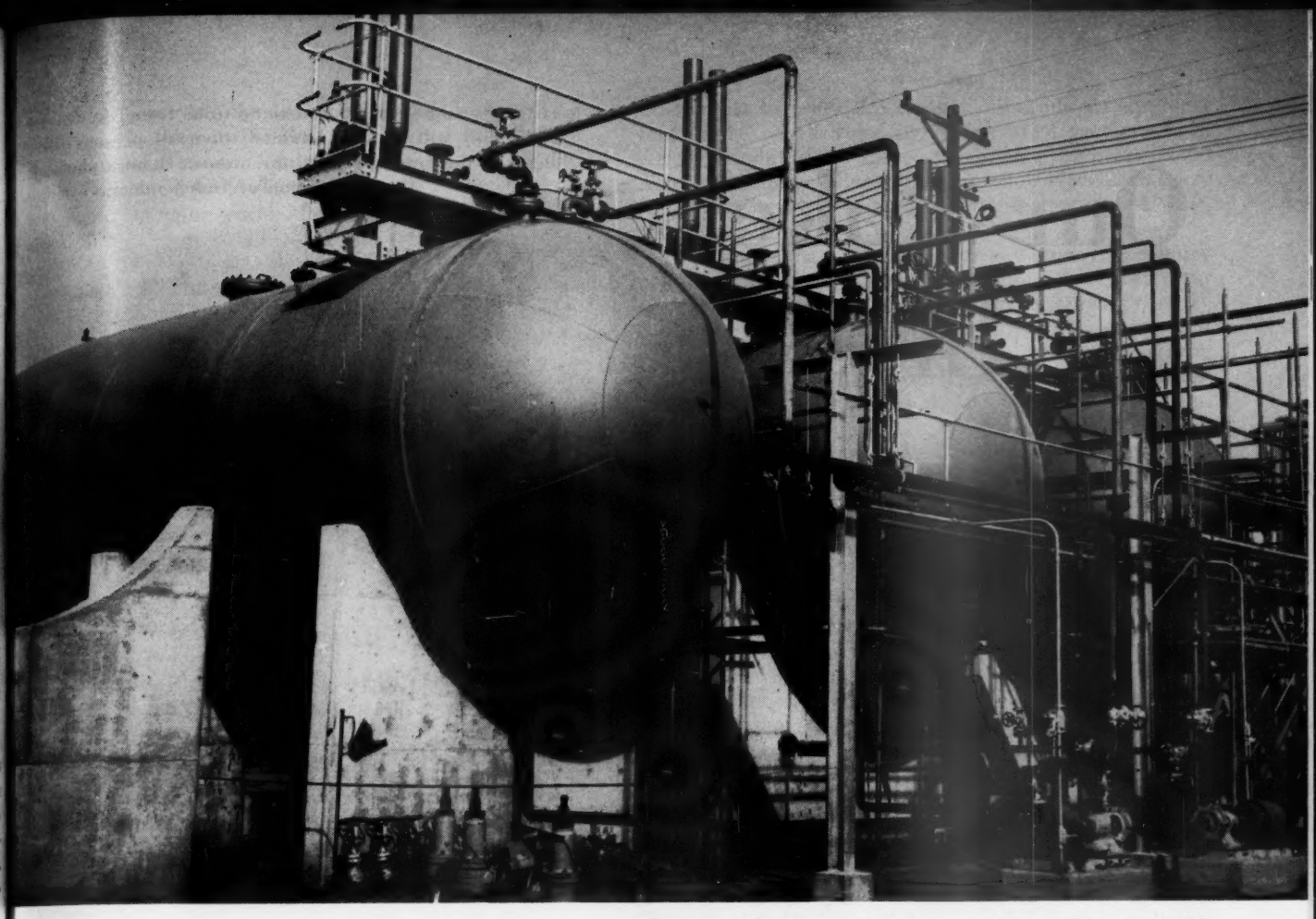
IN the paint field, Sherwin-Williams is bigger than Du Pont and both of us fight for business among nearly 1,200 active competitors. American Viscose is larger than we in viscose rayon; Celanese in acetate rayon, and there are about 15 other important companies in those fields. Union Carbide is bigger than we in plastics; Allied Chemical in nitrogen products; Eastman Kodak in photographic film; Dow in chlorine products and also in insecticides.

I note that without shame,—because it comes about as a matter of deliberate policy—a policy of diversification which I believe has operated in the interests of the consumer, of the Du Pont Company, and of the public at large. With limited resources for capital expenditures, we have no wish to strive for a fixed percentage of any market. To do so would prevent us from exploiting to the full the new developments produced in our research laboratories, where, I might add, professional engineers play a major role, and that I think is our greatest challenge and our greatest responsibility. Any success we might have in excluding competition in viscose rayon, in paint, or in sulfuric acid might very probably make us miss a neoprene synthetic rubber, a cellophane, or a nylon, and that would be advantageous neither to us nor to the public.

For the Du Pont Company, and I believe this is also true for the chemical industry, I can say categorically that our present size and our present success have *not* come about through a process of stifling competition by absorbing competitors.

It has come about through the new products and new processes that have been developed in our laboratories, and the proof of that statement is in our sales figures. Sixty per cent of Du Pont sales in 1948 consisted of products that were not in commercial production in 1928—just two decades ago.

Experience in other countries has shown that the hand of monopoly is a dead hand indeed. It profits no one, least of all the company that attempts to practice it.



Characteristic of the chemical operations at Du Pont is this 149′ ethylene refining unit at Orange, Texas.

The Du Pont Company has existed for nearly one hundred and fifty years in an atmosphere of free and vigorous competition. We have done well under that system and we like it. Competition is a prod that keeps us continually on our toes. We think we are stronger because of it; we think we would be weaker without it. The opportunities for growth and service in our industry through the development of new things are limitless. It is utter foolishness to think that growth in any of its varied phases can be brought about only by the elimination of other manufacturers.

It should be obvious to anyone that big businesses are essential in the complex economy in which we live today. A business is simply a pool of people's resources—the resources of a group of employees, of a group of investors to accomplish a given task. Since there is a limit to what any one man will risk, the larger the task the bigger the pool must be. If we want low-priced automobiles, low-priced radios, low-priced television sets, we must have a large team of people to work and venture so that the benefits of mass production can be applied to those products. So far as Du Pont is concerned we have endeavored over the years to tackle the difficult projects that make full use of the resources we enjoy. I would like to cite a few examples out of many in which that policy has been successfully employed.

THE United States had no dyestuffs industry worthy of the name prior to the First World War and was dependent on Germany even for the dyes with which to print stamps and money. Du Pont was one of the pioneers in instituting dyestuffs manufacture in this country. What that venture cost like-minded chemical manufacturers I do not know. I do know that for Du Pont it was eighteen years and 43 millions of dollars before profits offset losses.

(*Continued on page* 30)

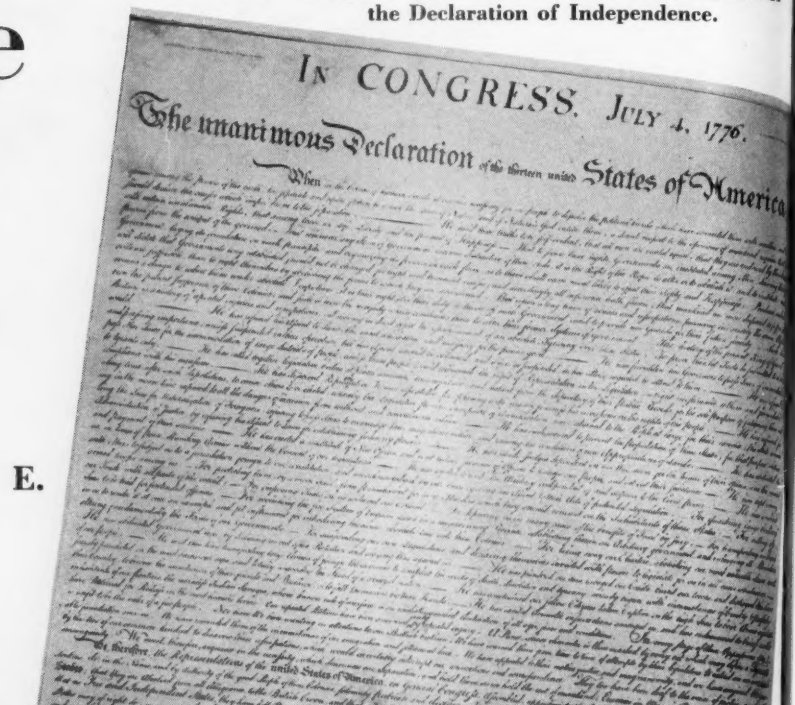
It should be obvious to anyone that big businesses are essential in the complex economy in which we live today, the author states.

Our Stake In America

By Robert Williamson, Jr., P. E.

President, W. Virginia SPE, NSPE

If liberty and equality are chiefly to be found in democracy, they will best be attained when all persons alike share in the government to the utmost. Below: photo of the Declaration of Independence.


IN CONGRESS. JULY 4. 1776.

The unanimous Declaration of the thirteen united States of America

EDMUND BURKE once said that a great unwritten compact exists between the dead, the living and the unborn. Such an inviolate compact requires that we leave to the unborn something more than financial debt. How can we as professional engineers leave something better to those who follow us? Well, let's analyze what we as individuals want.

We, as individuals, are not simply interested in joining the West Virginia Society of Professional Engineers, the National Society of Professional Engineers, any of the founder engineering groups, or any other Engineering Society. We are interested, tremendously, in becoming better known in our profession, more highly regarded in our communities, and better able to gain advancement in our vocations. How can we gain these advantages? Not by advocating those measures which have for their primary purpose the enrichment of the economic and social welfare of a comparatively few engineers. Rather, by lending our best efforts to a public service of benefit to all. No unworthy philosophy can long endure. We must feel and act like professional people, and be willing to assume the extra responsibilities as such.

It is our obligation to our unborn professional brethren, that we leave to them a profession and a nation made richer in opportunities by reason of our having passed this way. We owe it to our ancestors to preserve those rights which they have delivered to our care. We owe it to posterity not to suffer their dearest inheritance, freedom, to be destroyed.

IF liberty and equality are chiefly to be found in Democracy, they will best be attained when all persons alike share in the government to the utmost. These are not new words. They were spoken by Aristotle 350 years before the birth of Christ. It is the duty of the members of our profession to assume more responsibility for government.

Professionalism and responsibility go together hand in hand. Registration is the first step toward professionalism. One hundred per cent of all the doctors are registered and licensed to practice medicine. One hundred per cent of all the lawyers are registered and licensed to practice law. Registration is the mark of the competent man and a barrier to the unfit. Many competent engineers working in industry apparently feel that it is unnecessary for them to register. This may be true from the strictly legal standpoint. Yet by their reluctance to join with other of their fellow engineers they are making it more difficult to properly present the profession in all its glory to an unenlightened public. In most cases the unregistered engineer simply fails to recognize his debt to his profession and the necessity for this first step toward professionalism.

Our first West Virginia registration law was enacted in 1921. This law was amended in 1931 and further amended in 1935, to make it one of the most effective and all-inclusive engineers registration laws in the country today. Voluntary registration is truly a mark of professional pride.

There are now 350,000 engineers employed in this country. There are registration laws in all 48 states and the District of Columbia. One hundred fifty thousand engineers are registered. If all engineers were registered and showed a solidarity of interest in their profession through affiliation with a national professional engineering society, the exertion of their influence for the common good of all would more than off-set the evils done by many other organizations of greater numerical strength. Engineers should be united in one professional group, as well as being affiliated with their respective founder societies. United we can become a great institution.

RALPH WALDO EMERSON said "An institution is but the lengthened shadow of a man." The engineering profession

will be just what we, the individuals, make it. It will be simply our lengthened shadow. It will grow in influence and importance as our shadow lengthens to engulf the responsibilities of professional men.

Ours is a changing world. Many new responsibilities are placed on us. Many problems are facing the engineering profession. Not because we are engineers, but first of all because we are citizens. At no time in the history of this country has there been so many questions which should be answered. Where do we fit into the plans for the future? What are our obligations to our profession and to the public?

We need not here defend or condemn; discuss the merits or demerits of what some have chosen to call collectivism, the welfare state, state socialism, democratic socialism and other names our forefathers abhorred, but there are things which we as engineers and American citizens should weigh carefully and in every way possible to us attempt to prevent the degeneration of our birthrights. We should concern ourselves about any trends, to the right or to the left, in our American way of life. We should weigh them against certain fundamental truths which we cannot deny and should not overlook.

We engineers should not be alarmed at any degree of aid to old age, health, education, housing, etc., or any form of aid to, or regulation of business and labor, believing that it embraces socialism and is leading us into the Communistic state. But we should recognize that there is a price to be paid.

We must recognize that our governments are run by politicians. Politicians must maintain their success by continual re-election to office. They can gain this only by advocating and supporting those principles of government which will meet with the approval of 51 per cent of those people who vote. If our public servants are not acting in harmony with the desires of a majority of our people it is because the majority has not been articulate enough to let them know what it is it wants. We should not blame the politicians. We should place this blame upon ourselves. If we are willing to let a majority of those who vote dictate the kind of government we are going to live under and it results in 25 per cent of the adult population telling the other 75 per cent what to do, we haven't much right to say they are wrong. If we live under a government elected by 51 per cent of the whole adult population we must admit that it has become the American way of life and adjust ourselves to it.

On the national scene in 1896, 83 per cent of all the qualified voters cast their ballot. In 1916, 72 per cent. In 1936, 57 per cent. In 1948, 50 per cent of our qualified voters expressed themselves at the polls. A government selected by a small part of the people soon becomes a dictatorship. We will soon be headed in that direction if we, as a part of the great middle class, do not exercise the rights which are ours. Candidates and elected officials are entitled to know how all the people feel, and how all the people will react to the principles of government for which they stand and upon which they are seeking support. They want to do the job which will continue to hold the support of the whole voting population, if that is possible.

The great danger to our way of life is in our neglect of our own responsibilities and not in the ideologies of the politician or the platform of your party or mine. Nothing is stronger than public opinion. Given the facts, nothing is wiser. You can't help create public opinion if you do not take an active interest and a part in public affairs.

It has been said that the unconscious direction of our lives is often more important than our conscious intention. When the Communists took over Russia there was one Communist to every 2,200 Russians. Today, only 2 per cent of the people ruled by Russia are Communists. In America today there is one Communist to every 1,800 Americans and one Communist or fellow traveler to every 300 Americans. Does that mean anything to us? Ask yourself this question.

The Communist Party in this or any other free country is not a political party. Every Communist is a conspirator against the government unless he is in Russia or a country controlled by Russia. The Communist Party is an agent of the Russian Communist government in Moscow seeking to overthrow every free government in the world. Socialism to survive must pursue the same policy as the Communist government in Russia. It must be the boss not only of the business it owns, but of individual citizens as well. Those of us who know what freedom is about and have seen the richness of the past should, by our examples, light the way for our young engineers to follow in order to avoid the miseries of an existence devoid of this freedom.

Daniel Webster said that God gave freedom only to those who love it and who are always willing to guard and defend it. Patrick Henry, of course, said "Give me Liberty or give me Death." Too many of the descendants of these two worthy Americans today simply say "Gimme" without reckoning the cost. Plato said almost 2,500 years ago that everything that deceives may be said to enchant. You cannot let government give you cheaper housing, food, medical service, education, entertainment and security without sacrificing some of your personal liberties. All these may enchant but beware lest you lose the substance by grasping at the shadow.

The only liberty man enjoys freely is that which he earns by his own efforts, by his own ability, his own productivity and contributions to his own welfare. It should not be inferred that we must not sacrifice any of our liberties. With four million families in this country earning less than $1,200 per year; 9,700,000 families earning less than $2,000 per year; 2,400,000 families headed by persons over 65 years of age, in this country of plenty there must be alleviation for such conditions. But in bringing it about we should recognize fully the price we must pay through the sacrifices made in granting to government the rights to abridge our freedoms and distort our basic concepts of free enterprise.

Corporations are not all lily white and all their acts beyond reproach, yet for our way of life it is necessary to keep them strong. Labor Unions, in the effort to preserve their own freedoms, often violate yours and mine. We should seek to prevent the evils in the power of corporate wealth, and the undisciplined acts of organized labor. Yet, we should not destroy the ideas, the incentives which have brought comfort and happiness to millions whose ancestors knew only hardship and misery.

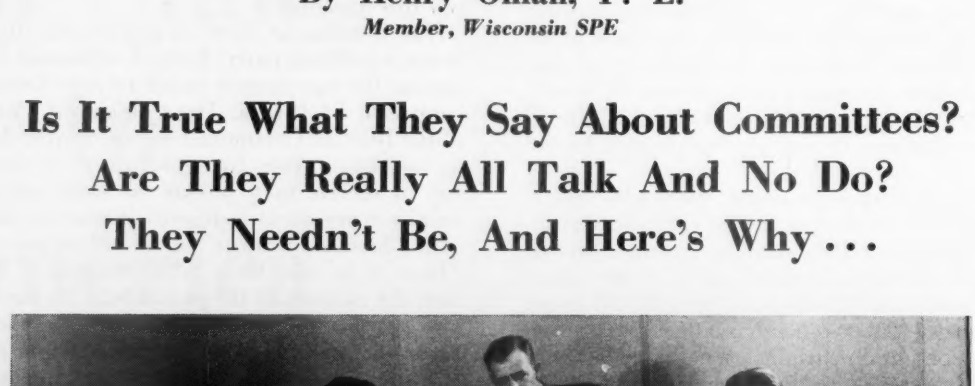
Engineers must contribute more to upholding and defending our fundamental and unalienable rights to Life, Liberty and the Pursuit of Happiness. Our Declaration of Independence says that all men are endowed by their creator with certain unalienable rights. Many dictionaries today fail to list the word "unalienable." The word inalienable may be found in all of them. In Thomas Jefferson's time the word unalienable was given the preference. A very learned judge in West Virginia recently brought out the difference in these two words. According to his definition, an unalienable right was a right given by God to the individual man and could be taken away from man only by God's act. An inalienable right was a right conferred upon man by man's laws and could be taken away by man's laws. We should think of these funda-

(*Continued on page* 34)

How To Make A Committee A Success

By Henry Oman, P. E.
Member, Wisconsin SPE

Is It True What They Say About Committees? Are They Really All Talk And No Do? They Needn't Be, And Here's Why . . .



EVERY fall hundreds of committees are enthusiastically organized in NSPE organizations throughout the country. The following summer the presidents or chairmen of these same societies review the past year's accomplishments of their committees, and in most cases find the results discouraging. Then at the annual meeting the president or chairman has to give the usual colorless report which goes something like, "and I want to express my thanks to the many hard-working committees which have accomplished so much during the past year." Then everyone quietly slips out of the picture with sighs of relief.

Once in a while, a strange thing happens. A committee, from which little was expected, suddenly begins producing great accomplishments. Nothing succeeds like success, and the committee collects support and workers, and soon goes way beyond all expectations in doing things for the society and the public! Then the president or chairman proudly announces at the annual meeting, "Our membership during the last year has increased 116 percent, and here are a few of the facts prepared by Mr. Doe, our Membership committee chairman: During the month of October we took in ....."

The resulting prestige and favorable publicity for the successful committee chairman is of course tremendous.

Suppose that you are appointed the chairman of a committee. What can you do to make your committee one of those that wind up the year with success, enthusiasm, applause, and smiles? It is the intent of this paper to give suggestions on this problem, based on the author's experiences in working with many successful committees, including one that raised the membership of an engineering society by 180 percent in nine months.[1]

In general, committees fall into three classifications:

1. Tough, active committees—like membership, program, or convention planning.

2. Opportunity committees—like civic affairs, employment, professional development, publicity, publications, technical papers.

3. Relatively inactive committees—transfers, finance, policy.

No committee can be considered dead and without opportunity. However, in general, the first two groups offer the greatest possibility for dramatic accomplishment.

THE first thing for a new chairman of any committee to do is to get a big committee, with lots of new blood. There are good reasons for getting one's committee organized within seven days after he has been appointed chairman. The previous chairman, who in all probability is only too glad to get out from under, can be counted on for very little help . . . you will be lucky even to be able to find his files, which may be just as well. All members of the previous year's committee should be invited in. Then all volunteers should be appointed to the committee. This is very important, because members become disgruntled when they do not get on committees for which they volunteer.

Then comes the job of really going after members for the committee. It is well to try to get representation from every major industry, institution (schools, colleges that

employ engineers), and government agency in the area. It is well to go after at least twice the number needed to do the job, because even at best, you can count on only half the members of a committee being effective at any one time.

There are a number of psychologically sound ways of insuring acceptances to committee invitations. One relatively simple one is as follows: Suppose you want a representative from the local utility for an NSPE committee. You would call some official of the utility who is also an NSPE member and ask for suggestions (which you might literally put in his mouth if you already know who you want). Then you telephone your prospect, "This is John Doe speaking. I have been selected to head the NSPE Civic Affairs committee this year, and I find that we have some very touchy problems to consider, the right solution of which will mean a great deal to the community. I asked Mr. Bigwheel for suggestions on NSPE members who are unusually clear thinkers on these matters, and he has suggested your name. I know that you are very busy, but do you suppose you could find a little time to consult with us on these problems?"

A chairman should also try to get at least one officer and one director of the society on his committee.

Laying Out Objectives

"Nothing but the tops" is the way to establish objectives for the year. Here are typical objectives:

Membership committee—"200 new members within ten months!"

Program committee—"Nothing but the best speakers in the country!"

Civic Affairs committee — "Thorough engineering studies on four problems, and results effectively publicized before the year is over!"

Publicity committee—"100 column inches a month!"

Publications committee—"The best magazine of its type in the country, before the year is over!"

IT is surprising how easy it is to accomplish such objectives, or at least come mighty near them with a committee that is effectively operated.

There are dozens of methods and devices which an engineer can think up for developing a committee that steam-rollers over all obstacles. The following six seem so important that they should always be employed:

1. Developing enthusiasm. Unfortunately, many chairmen are depressed at being assigned a job, and radiate nothing but gloom. On the other hand, a chairman who gets a little excited about the possibilities of his committee radiates enthusiasm that is catching. One shouldn't pass up any possibilities for developing enthusiasm for his committee's work and opportunities. Here are two practical reasons: (a) nobody resigns from an enthusiastic committee unless he absolutely has to, and (b) an enthusiastic committee seldom has difficulty in getting the authority or money it needs from the board of directors and officers.

VARIOUS incentives will help develop enthusiasm. One membership committee persuaded a local industrialist to promise it a dinner at a swanky club when they brought in 60 new members in one month. Only about half of the committee came to the victory dinner, but every man was enthusiastic about the prospect of "beating Seeger out of a dinner!"

2. Using circular letters effectively. This very valuable device seems to be neglected by most committee chairmen. Usually, only about half of the members of a committee ever attend a meeting at one time. However, if the whole committee is fully informed at all times, the ones who failed to attend the previous meetings will not need to be brought up to date at the next one. Circular letters keep the members continually reminded of their participation in the committee and enable them to authoritatively discuss the committee's activities with their associates. Enthusiasm is easily generated by circular letters which announce fresh successes of the committee.

Placing officers and directors on the committee's mailing list insures better reception at directors' meetings (when a director says, "I have been following what you are doing on this . . .," it usually is as good as a "yes" vote for your proposal).

A circular letter should not be more than one page long unless absolutely necessary. Do not be afraid to use sketches, curves, cartoons, etc., where helpful. Always use first class mail, and put special delivery stamps on if the news is exciting.

TWICE a month is not too frequent for sending circular letters. The minutes of the previous meeting should always be accompanied by a circular letter from the chairman, preferably citing action already taken on matters brought up.

3. Running Meetings. Everyone complains about the price of dinners, but it has been almost a universal experience among engineering societies that a committee meeting preceded by a dinner brings out more members than a meeting later in the evening. A little search will usually produce some relatively inexpensive eating place that will provide a satisfactory private dining room.

It is also an almost universal experience that every member of the committee will have to be reminded before each meeting. The meetings should be announced by circular letters well ahead of time, but the chairman, or his secretary, (or several members of the committee among whom the work is divided) will have to do telephoning the day before the meeting.

Business sessions should not exceed two hours in length. A definitely established adjournment time will make members more likely to come. (Unfinished matters can usually be settled by the chairman in post-adjournment "discussion.")

PREPARATION for a meeting is very important for the chairman. If he will spend an hour in quiet thought and planning before the meeting, he can usually find ways for making the meeting sappier, more enthusiastic, and interesting. A carefully planned, though unannounced, agenda is a must.

Fortunately, most committees don't have constitutions and by-laws, and this makes it possible for the chairman to take the leadership in railroading through unimportant details and cutting long-winded discussions short. Instead of having motions and voting, he can usually say, "If I hear no objections, shall we proceed with ——?" Discussions on trivial details can be quickly terminated with remarks such as, "If I am not mistaken, the thinking of the group in general is this: ——," or in other cases, "I don't think we have to take up the time of all of you busy gentlemen ironing out the details on this matter. Wouldn't it be satisfactory if we let Mr. —— and Mr. —— iron out the details, and then proceed according to their suggestions?"

INCIDENTALLY, the "pocket veto" provides a convenient means of disposing of proposals which are impractical, yet would take too long to discuss. "For lack of time" the chairman postpones consideration of the idea to the next meeting, or assigns it to a special sub-committee for study.

(*Continued on page* 32)

Answer Sought To Deferment Problem

By Milton F. Lunch
NSPE Legislative Analyst

ON the first day of the opening of the 82nd Congress the Preparedness Subcommittee of the Senate Armed Services Committee will commence hearings on one of the most important and most difficult of current problems—manpower mobilization.

One of the most perplexing facets of the overall problem is what to do about a continuing supply of technical specialists—engineers, doctors, physicists, chemists, and the many other specialized fields which go to make up the backbone of the nation's secret weapon—produciton. Everyone who has considered the question readily agrees that the nation simply cannot do without its team of technical specialists—and almost everyone agrees that the present supply in these fields is woefully short. There is also substantial agreement that the present supply of such persons must be augmented by a steady flow of newly trained students.

The shortage problem may be illustrated by the recent figures on the engineering profession as compiled by S. C. Hollister, dean of engineering at Cornell University. The declining freshman enrollment in all branches of engineering is shown by the following figures: 1948, 47,000; 1949, 36,000; 1950, 26,500. Based on present enrollment figures the following estimates were made of the number of engineering graduates in all branches of engineering for the next five years: 1950, 50,000; 1951, 31,500; 1952, 21,600; 1953, 17,000; 1954, 12,500. These figures do not take into account the fact that Selective Service demands will reduce the number of graduates considerably.

Dean Hollister points out that at the same time the number of engineering graduates is falling so rapidly, the demand is rising. Industry has absorbed the 50,000 graduates of 1950 in spite of predictions that there would be an oversupply. The armament program now under way will demand the services of more and more engineers in the immediate future. This finding is substantiated by a number of other authorities. Dr. H. J. Armsby of the U. S. Office of Education has stated that even if there had been no war in Korea the nation's supply of engineers would reach a critical low in 1953.

In view of these facts, what should be the nation's policy in balancing military manpower needs against the needs for a continued supply of technical specialists? At this point all agreement ends. The problem has been studied and re-studied by many groups, private and official. The result is a plethora of plans, none of them completely acceptable to the groups sponsoring the other competing plans. The more important suggested programs are presented below.

The Trytten Plan—Two years ago Selective Service Director Hershey appointed six Scientific Advisory Committees to advise him on the whole problem of classifying individuals in the best interests of the nation. The committees were headed by Dr. M. H. Trytten of the National Research Council. At a recent public meeting attended by over 250 leading figures interested in this problem the committee presented its unanimous recommendations.

The basic concept of the plan is that there be a special class of registrants under selective service who would be allowed to complete higher education. Admission to this special class would be based on a national educational aptitude test with a required score equivalent to 120 on the Army General Classification Test, plus a superior record of educational performance. The committees estimate that under this requirement approximately 65,000 students would qualify each year. The minimum qualification figure could be raised or lowered each year according to need and supply. For each year the student was deferred, a year would be added to the length of time for which he was eligible for military service from an age standpoint. (At the present time the age limit on draftees is 26; under the proposal if a student were deferred for four years he would be draftable until the age of 30.) Following graduation the student would remain in the special class for four months. He would then be eligible for classification for military service unless he had obtained a position regarded as essential to the national health, safety, or interest.

There have been a number of criticisms of this plan. One of the main objections is that the fields of study would not be controlled. Students qualifying for deferment could pursue courses in subjects not directly related to the national defense (business administration, journalism, law, etc.) The Trytten Plan proponents say that it is impossible to specify particular courses of study related to national needs and that there will be indirect pressure for the student to study essential fields (engineering, physics, chemistry, etc.) due to the requirement that he obtain an essential position within four months after graduation.

The McGrath Plan—Similar to the Trytten Plan is the recommendation presented by Earl J. McGrath, U. S. Commissioner of Education. The basic difference is that under the McGrath Plan the number of students deferred for higher study would be based on State quotas. The plan proposes a quota of 100,000 students among the states on a population basis or on a basis of numbers of high school graduates each year. McGrath also called for immediate enactment of a federal scholarship and loan program to assure equality of access to education among all qualified persons. There are other minor differences between the McGrath Plan and the Trytten Plan but in substance they are similar except on the question of state quotas versus a national approach, and the scholarship and loan program upon which the Trytten Plan did not make a specific recommendation as it was felt that such a suggestion was outside the scope of the committee's responsibility.

The same criticisms apply to the McGrath Plan as apply to the Trytten Plan. The feature of state quotas would make the program more feasible from a political standpoint. Under such an operation each state would be assured of its proper percentage of deferred citizens. The basic reason for the state quota idea is to take care of regional differences in early educational opportunity. A spokesman for the McGrath Plan stated that a national system would be equitable if the intelligence quotient test measured native ability only and did not reflect early education. Such a test cannot be devised, however, it was stated, and in view of the superior educational facilities of some states over others a national system without state quotas would produce the largest numbers of deferred students from the wealthier states with the best elementary education facilities. The critics of this argument state that any plan should be designed to provide the best results for the nation and not to insure equality of treatment on an individual or geographical basis.

The Conant Plan—A leading contender in the pres-

My Orientation Problem As A Young Engineer

By Henry Lehmann

Technical Education Division, General Electric Company

A YOUNG engineer, assigned the design of a small transformer, has spent three fruitless days probing his college textbooks for an applicable design formula. Yet, every relationship he has found yields only the product of the core area and the number of turns. In spite of his efforts he has not been able to find an explicit definition for either of these parameters.

Thoroughly perplexed, the young engineer seeks the help of a more experienced associate. Instead of receiving the formula he wants, the recent graduate is handed a standard practice book containing lists and descriptions of standard punchings, insulation characteristics, costs, and a host of other data. The young man, now completely discouraged, returns to his desk muttering something to the effect that school was never like this.

The above may be an improbable exaggeration, but it does illustrate that one of the major adjustments a young engineer has to make is to realize that "this is not like school."

In most engineering colleges the student is taught how to analyze the performance of a finished product. Given the resistances and reactances of a motor, the student can calculate the shaft torque; given the number of turns and the core area of a transformer, he can compute the induced voltage. It is important to note the thought process in which he is trained. In every problem he is given definite parameters, a specific formula, and comes out with a definite answer.

If after graduation the young engineer joins a design engineering group, he discovers that the work requires not the performance analysis of a finished product, yielding definite answers, but rather the synthesis of a product to meet a required performance, a process which never yields definite answers.

The graduate soon discovers that there are no readily available textbooks or formulae to solve his dilemma. No one has yet derived an equation, based upon physical laws, which will define specifically the core area of a transformer in terms of the performance alone. And no one ever will. Mathematics and physics will at best define the product of the core area and another unknown, the number of turns.

The young engineer in the introductory example, as well as those entering the design engineering field, must thus make a major adjustment before being able to cope with these new problems. He can not make this adjustment by merely rearranging familiar equations, but must make a fundamental revision in his thniking process. He must realize that definite answers are not to be had, but that there is only one method by which he can find his answer; by using what is perhaps the most important engineering tool: judgment.

In the above example, the design of a transformer, the engineer must consider a multitude of factors which he had never previously associated with engineering. He must consider what punchings are available, relative costs of iron and copper, and ease of assembly. He hears a new law about transformers, equally important as the law of balance of ampere-turns, the law of balance between copper and iron. It is not until he has mastered all these factors that he can make a judicious choice of the core area and number of turns, and thus alleviate the difficulty with which he is faced.

We, the young engineers entering the design engineering field, must make a large number of individual adjustments. But besides the personal and social reorientations, which depend upon the individual, all of us have to invert and expand our thought process; we have to change from analysis to synthesis. We have to cease expecting explicit relationships yielding definite answers, but accept the indefinite results of design and cultivate the judgment required to turn these into new and better products.

(This paper was prepared under the direction of NSPE's Young Engineers Committee, Col. Chester Lichtenberg, Chairman. Future papers will be published.)

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ent competition is the program of universal military service offered by the Committee on the Present Danger. This group is composed of eminent citizens who feel that the danger to the nation is so grave that there should be all-out mobilization with no college deferments. Among the sponsors of this suggestion are Dr. James B. Conant, president of Harvard University, and Dr. Vannevar Bush, president of the Carnegie Institution of Washington. Under the Conant Plan every youth upon reaching the age of 18 would be required to serve two years in military service. There would be a definite commitment to release the youths at the end of the two-year period. Only in extreme cases such as blindness, loss of limbs, etc. would the youth be exempted. The Conant group states that the educational process would function normally following military service except that the students would be two years older at the start of their college training. It is recognized that college education would be disrupted during the first two year period but this is stated to be a necessary hardship which the colleges can survive.

The Trytten group specifically denounced this suggestion because it would virtually stop the production of superior scientific, professional and specialized personnel for a period of at least two years. Many of those entering military service would not return to college, and there is the definite danger that the two-year period of service might be extended if the international situation worsens, it was stated.

The NSPE Plan—The Board of Directors of NSPE recently adopted a suggested program to meet the grave engineering shortage of the present and particularly the shortage of future years. The NSPE plan is confined to engineering education but could be broadened, if approved, to cover other essential fields. Under the plan there would be a manpower mobilization board for engineering and science student deferments, which would make specific determinations of requirements for future national needs in engineering and science. In actual operation the proposed plan would work as follows: the manpower mobilization board, after consultation with industry, government officials, and educators, would forecast the future needs for engineers and scientists, the estimates to be revised periodically. The forecasts would be predicated on the probable needs for several years in advance and would provide a student body to supply these needs taking into account the normal attrition in engineering and science courses due to scholastic standards. Ac-

(Continued on page 28)

Fund Drive Advances; Contributors Listed

As NSPE's public relations fund-raising campaign moved into its third month, officials emphasized the following developments:

1. To clarify some misunderstandings as to the purpose of the public relations program when underway, it was pointed out that employers of engineers will not be contacted in any way other than would be entirely acceptable to state and chapter officials, and then only along strictly professional and dignified lines. The actual distribution of any material will be left to the judgment of local officials.

2. To clear up further questions concerning another objective of the program, NSPE leaders said that the whole program when underway will emphasize the need for competent engineering, and where an organization has its own staff, certainly by that staff. But, where it is not feasible for an organization to maintain a full-time staff, or where that staff needs to be implemented by special work, it will be the task of the program to point out the availability of private practioners and more particularly, the value of competent engineering advice.

3. It has been announced that the well-known bridge engineer, Dr. D. B. Steinman, first president of NSPE, has offered to present as a gift to contributors of $25 or more, a copy of his renowned book "The Builders of the Bridge." The book will go to all twenty-five dollar contributors from January 1, 1951, onward.

4. NSPE headquarters in Washington has announced that the professional engineers plaques offered to all contributors of $5 or more, have become in short supply. The manufacturers of the plaques have notified NSPE headquarters that a reduction in the amount of metal allowed them has been imposed by the federal government. This means that some contributors of $5 or more may have to wait several weeks until their plaques will be available.

The public relations program, an activity which has brought dozens of letters of comment from members throughout the nation, will be high on the agenda of the Executive Committee when it meets in Washington in January. It is expected at that time that NSPE officers will take cognizance of the views of members received thus far, and formulate a course to be followed during the next few months. NSPE members, of course, will be kept notified of actions through the pages of the AMERICAN ENGINEER.

Chairman C. G. Roush of the NSPE Public Relations Committee, again called to the attention of members that the program should not be thought of as an "advertising" campaign. Once the program is underway, Roush said, much of the activity will be carried out at the local level. Chapter and State officials, it was again stressed, will play a leading role in preparing the material to be used in getting the professional engineer's story before people of significance. Mailing lists of those to be contacted will be prepared by the Chapters to insure that only those best informed about local conditions will determine to whom informative data should be sent.

CONTRIBUTORS LISTED

In order to add impetus to the campaign, the NSPE Public Relations Committee has authorized the publication of early contributors to the Fund-raising Drive. The names of these contributors and the states they represent, are listed below. Although every attempt has been made to include the names of all contributors received up to press-time, omissions may be discovered. If a contributor's name is not listed, and if he made his contribution prior to December 15, it is requested that he call this to the attention of National Headquarters. Future lists will be published in the American Engineer as additional contributions are received.

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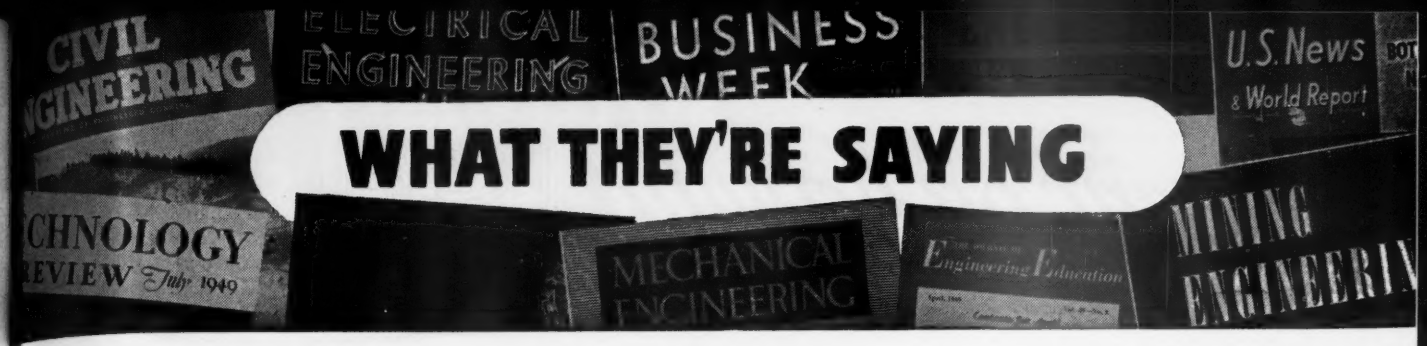


SHORTAGE OF ENGINEERS . . .

On top of the President's call for three million men for the armed services by the fall of 1951 comes the news of a sizable decrease in enrollment in engineering colleges throughout the country—all of which constitutes an ominous threat to the technical manpower supply so vital to our industry's continued progress.

According to a survey by Raymond Walters, president of the University of Cincinnati, (as reported at a recent ECPD meeting) 75 per cent of over 500 approved colleges and schools have already shown considerable decreases in full-time students as compared to a year ago. Engineering colleges show heavier losses than other types of colleges, both in full-time students and in freshmen. Unfortunately, a part of this decrease can be attributed to a Department of Labor report that indicated the field of engineering to be overcrowded.

It was brought out at the ECPD meeting that the entire group of 50,000 June graduates in engineering have been absorbed in industry, and this represented an all-time graduation peak for this field. Further, if 50 per cent of the freshman classes now in engineering schools graduate, it will supply barely 17,000 engineers as compared to 50,000 total placed this year.

Another vital aspect of the technical manpower situation which cannot be fully appreciated by the lay public was brought out in another ECPD talk by A. R. Hellwarth of the Detroit Edison Company who stated that industry invests at least $10,000 and two years of irreplaceable time before a newly-recruited engineer is able to accept the full responsibility of a job in a modern industrial organization.

It behooves our industry to give serious consideration to the technical manpower situation which these developments indicate will come to pass. Concerted action by the industry could aid materially in retaining young engineers now employed, as well as to help insure that present engineering students will be allowed to complete their college education. — *Electrical Light and Power, November,* 1950.

CONTEMPLATION: ITS STATUS IN OUR SOCIETY

We take great pride in being a capitalistic nation for we "regard wealth as the best means for an ever more complete satisfaction of every conceivable need," according to Amintore Fanfani. For capitalism to function unimpeded, all social institutions must be organized to be in tune with its aims and desires. Obviously, the state must be so fashioned that the capitalistic society can function unimpaired.

It is essential that the milieu be correct for our capitalistic spirit to flourish. The atmosphere has to be regulated, controlled, and organized so that individual efforts and activities may attain their fullest scopes. All actions and means must be guided toward the end that individual economic utility may attain its fruition. Such are our principles and criteria.

In former years and in other countries, religions set the patterns for society. It was not so long ago that the Church served as our arbiter for all matters of ethics, morals, and daily living. The rise of a naturalistic society destroyed the grip that the Christian Church held over Western society for more than a millennium. Today, the desire for pecuniary gain takes precedence and serves as the mainspring of society.

Those of us who are in business recognize the difficulty of thinking, after the average arduous day devoted to toil. There is just so much energy to which we are heirs and we find that competitive existence is extremely taxing and enervating. After work, we are just plain tired! Our leisure activities bear this out.

Mannheim has written very concisely upon the aforementioned. Within society there are six possible cultural patterns that individuals may pursue to give it direction, substance, and goal. Such persons or groups who guide and inspire the society's character are its elite. Mannheim lists them as "the political, the organizing, the intellectual, the artistic, the moral, and the religious. Sparta may be cited as an example of a civilization in which the political and military elites repressed all others, while in the United States the elites have been absorbed in the problems of organization, and this has determined to a very large extent the intellectual outlook of the whole nation."

When our chores for the day are done, we, as a nation, relax in a uniformally characteristic manner, with few variations. Needless to say, there are some who do not follow the pattern.

In the more active fields of sport, most of us derive our exercise through vicarious participation in an extremely passive manner. We watch others being active, whether it be in stadia, in the movies, or at home on television.

The mere possession of wealth is no criterion that the fortunate one will use his leisure in a way different from him who must toil incessantly. Mannheim says, "Comparative studies in the use of leisure show at first glance that a higher position, larger income, and increased security do not necessarily lead to culture. Unless material advancement is combined with personal example and the persuasion exercised by the pressure of intelligent standards for the use of leisure, it may end in boredom, neurosis and general decadence."

It is realized that conflict and competition are the real enemies of contemplation. Our mimesis is centered about the functioning of an organizing producing elite. They establish the pattern we follow. As Mannheim says, "A Society which uses all its energies in organization leaves little opportunity for introversion, contemplation and reflection."

One may express wonder as to the manner in which we arrived at the state wherein as a society we devote so little time to contemplative thought. It did not develop out of nothingness. There was a very concrete cause which is historically discernible to anyone who is familiar with the development of the Protestant Reformation and more specifically with the growth of Puritanism. Their bequest has been so penetrating that even in the pure sciences we lag. Great fundamental discoveries arise in other countries.

The Puritans taught us that unless time were spent upon usefully resultant

(*Continued on page* 33)

Accent on Activity

BALLOTS FOR NSPE'S ANNUAL ELECTION OF OFFICERS have left Hqs. . . . It is your **DUTY** to vote. . . . Mark ballot and return in envelope enclosed for that purpose. . . . **IF YOU GET A DATA CARD ALONG WITH YOUR BALLOT, BE CERTAIN TO FILL IT OUT COMPLETELY AND RETURN. . . . INFO on cards serves many purposes at HQS.**

MEMBERS WHO HAVE NOT PAID DUES will be dropped from roles . . . this is last issue of AE they will receive. . . . Send in dues now and avoid loss of membership in fast growing NSPE. **Membership is now over 24,000!**

IMPORTANT TO CONTRIBUTORS TO PUBLIC RELATIONS FUND: All contributors of $5 or over were to receive Professional Engineers auto plaque. **THERE MAY BE SOME DELAY.** . . . Firms who manufacture plaques for NSPE have advised of metal curtailment imposed by Government. . . . Plaques will be slower coming. **ALSO ON PR FRONT:** Kits to aid Chapters and States to promote **ENGINEERS' WEEK** have gone out. . . . **REQUESTS CONTINUE TO COME IN FOR MORE KITS.** . . . Some states have already requested **GOVERNORS TO ISSUE PROCLAMATIONS.**

AS ADMINISTRATIVE YEAR ADVANCES, NSPE COMMITTEES ARE GETTING THINGS DONE. HERE ARE REPORTS ON A FEW: CHAPTER ACTIVITIES COMMITTEE: Questionnaire sent to Chapters requesting comments on Chapter Handbook and chapter work in general, have been returned. **INFORMATION WILL BE VALUABLE IN HELPING EVERYONE WORK TOGETHER FOR BETTER CHAPTER MEETINGS, ETC. . . . CHAIRMAN LEO McKEE OF LAND SURVEYORS COMM.** requests in memo that States work to cement relations between PE's and surveyors. Asks that at least one meeting a year be arranged with surveyors for the discussion of mutual problems. **AT THE SAME TIME, Cherry Emerson, Chairman, INTER-PROFESSIONAL RELATIONS COMMITTEE,** urges States to develop closer liason with architectural groups.

NSPE'S EXECUTIVE COMMITTEE meets on January 14 in Washington for regular meet. **IMPORTANT ON AGENDA:** Implementation of the Public Relations Program; Analysis of report of the Exploratory Committee on Unity In the Engineering Profession; Consideration of recent developments of manpower situation; NSPE'S '51 Membership Program.

MANPOWER IS BIG TALK IN WASHINGTON TODAY AND ENGINEERING PROFESSION IS IN THE MIDDLE OF IT. . . . LATEST NEWS: NSPE's Statement on National Security was sent to leading educators throughout Nation. Many have requested additional copies. . . . After same Statement was released to press, **Executive Director Paul Robbins** was summoned to discuss same with Air Force, National Security Resources Board, Selective Service and U. S. Office of Education. . . . Recent meeting held by Selective Service Advisory Committee On Deferment of Students, was attended by Washington Hqs. staff members. . . . See story page 12.

WASHINGTON OFFICE asked by members to investigate the proper utilization of professional engineers in certain government jobs. . . . Special problems discussed with officials and results forwarded to members involved.

SOCIETY PRESIDENT SIDNEY L. STOLTE ON THE GO. . . . JAN. 11: Presents Charter to newly affiliated DELAWARE SOCIETY. . . . **JAN. 13:** Attends Pennsylvania SPE's Quarterly Board Meet. . . . **JAN. 14:** NSPE Executive Committee confab in Washington. . . . **JAN. 19-20:** Annual Meeting, Calif. SPE in San Francisco. . . . **JAN. 26-27:** Annual Meeting, Texas SPE at Mineral Wells.

BOOK LOOKS

Title: Air Power: Key To Survival.

Author: Major Alexander P. de Seversky.

Published by: Simon and Shuster. Price; Bound, $3.50; Paper Back, $1.00.

Broad in concept, logical in presentation, and both stimulating and reassuring to the reader, Major Alexander de Seversky's "Air Power: Key to Survival" is one of the most valuable non-fiction books currently on the market. In this work, Seversky has restated and brought up-to-date his well-known thesis that only through superior air power can America maintain peace or win victory. In so doing, Seversky has included considerations of such vital topics as guided missiles, re-armament of Europe, atomic bombs, and the importance of South America to the United States in the event of global warfare. In contrast to many fatalistic or pessimistic writings now extant on the fearfulness of atomic bombing and Russia's superior military strength, "Air Power: Key to Survival" is comforting reading, due to its non-hysterical and factual approach to these and other problems facing America.

The layman, after being confronted with a barrage of material on the deadly power and extent of the bomb, will be reassured to read Seversky's eyewitness account of atomic damage done at Hiroshima and Nagasaki, and his comparison of atomic and TNT bombing. This does not mean that the Major underestimates the atom bomb; rather he feels that its destructive power has been greatly over-rated and enlarged.

Russia's military strength, according to Seversky, is composed of mass land armies. She needs no navy, being independent of imports by sea, and self-contained within her physical limits. Further, her air power production has been considerably slowed down by the fact that she must provide vast land strength for herself and particularly her satellites, lest they claim that she is not protecting them and break away from her orbit. In mass manpower strength, then, America could not defeat Russia, but with superior long-range air power, we could carry the offensive to her factories and plants which supply the vast machine. Comparing Russia to an octopus and her satellites as tentacles, the author says that if we destroy the life-giving force of the octopus, the tentacles will die.

One of the more interesting facts brought out by Seversky is that "the prevailing mode of transportation of every epoch has always been at the root of the contemporary military strategy." The writer speaks of the *Pax Britannica* which lasted from 1815 until 1914 and tells how it was brought about by Britain's superior sea power, water then being the vital means of transportation. Since air power is now the best means of transporting war to the enemy, he feels that superiority in this field will assure America of victory in war or peace insurance.

Another point made by Seversky is the vast difference between the *strategic* and *tactical* use of air power. As a strategic weapon, air power is a long-range force aimed primarily at the destruction of enemy aircraft and production facilities. Used in a tactical capacity, however, airplanes function mainly as artillery, supporting army and navy action. Strategic air power can well win the war by itself, whereas tactical air strength can only be as effective as the forces it supports.

Seversky, distinguished aeronautical engineer, is no drawing-board expert on air power, for he is an ace pilot in his own right. His long fight for strategic air power recognition by the government is well known. The fact that many of Seversky's prophecies have now become realities should give pause to his more ardent critics. "Air Power: Key to Survival" should be of interest to any thinking American, and particularly so to NSPE members, as Major Seversky is a member of the New York Society.

Title: Sourcebook on Atomic Energy.

Author: Dr. Samuel Glasstone.

Published by: D. Van Nostrand Company. Price, $2.90.

The "Sourcebook on Atomic Energy" is a comprehensive review of basic non-secret atomic energy information prepared under the direction of the Technical Information Service of the U. S. Atomic Energy Commission. The sourcebook was written by Dr. Samuel Glasstone, scientist and author and consultant to the AEC, who also served as executive editor of the recently-published "Effects of Atomic Weapons." The foreword is written by Chairman Gordon Dean of the AEC.

The manuscript was reviewed by a number of scientists associated with the national atomic energy program for technical accuracy and the AEC Office of Classification for security purposes. During his preparation of the book, Dr. Glasstone studied the AEC's files of scientific reports and visited most of the major research laboratories to gain first-hand information. This sourcebook will be valuable for anyone interested in the scientific and technical aspects of atomic energy.

Title of Book: Conservation of Natural Resources.

Published by: John Wiley & Sons. Price, $6.00.

Edited by Guy-Harold Smith, "Conservation of Natural Resources" is a work written by twenty leading authorities in the different resources. Soils are discussed by Louis Wolfanger and William Rockie; Trees by J. Russell Smith; Grasslands by Herbert C. Hanson and Warren C. Whitman; and Irrigation by Ralph H. Brown.

The pertinent facts and conservation practices of forestry are discussed by Oliver D. Miller. Important conservation problems of water supply and power, flood control, minerals, wildlife, and fisheries are also treated in detail by John H. Garland, George J. Miller, Edwin J. Foscue, W. M. Myers, E. Willard Miller, Charles A. Dambach, Howard H. Martin and the Editor.

Information on recreational resources, government planning, and the public domain is also included.

Title: Manual of Practical Office Short Cuts.

Published by: McGraw-Hill Book Company, Inc. Price, $3.50.

Here is an invaluable collection of 625 proven practices and procedures for streamlining office routine. Covering the important, everyday functions of the modern organization, this manual supplies details on many refinements for increasing the effectiveness of departmental operations and of executive control—from practical hints in filing and typing, to improved practices of inventory control—from specimen work simplification forms, to scientific tests for the selection of personnel—etc.

In bringing them together in this convenient form, the book—through ample, to-the-point descriptions—plus more than 100 drawings and photographs of records, forms, equipment, and miscellaneous gadgets—makes crystal clear how each idea can be applied with profit in your own company's various departments.

TO THE *Editor* . . .

Dominated Societies . . .

Dear Editor:

Is it possible for you to present the following remarks to Mr. John T. West, Jr., P. E., in regard to his article, "Why Belong" in the November issue of the American Engineer?

Mr. West has a great deal of talent in the field of writing, in which I cannot match him. I think I can say that I agree with him in everything he says except the major premise: that the objectives he so well outlines can be attained only by NSPE, attained by them better than any of the other engineering societies, or even that any very energetic attempt is being made to attain them.

The ASME has about the same aims and also attains none of them. The sarcastic member who talked down his Society has probably, like this writer, become disgusted by the repetition of the procedure of all engineering societies,—domination of the society by prominent engineers acting as an agent of their employer rather than as an engineer acting for his fellow engineers.

The existing engineering societies are doing all that seems necessary in improving the distribution of engineering information, establishing standard procedure, improving professional ethics and ideals, providing social contacts with fellow engineers, obtaining favorable publicity and like worthy objectives. NSPE could well afford to militantly strive to improve the status of those men with engineering degrees who want to practice bad enough to obtain a license. We HAVE to have selfish aims with the squeeze between ignorant and unreasonable employers on one side and the demands of union labor on the other lest we wind up with no recognized rights, no appreciable voice in management of industry nor in our government nor yet with even a living standard of income. We are close to that estate even now.

HUGH H. CARR, P.E.,
Rochester, N. Y.

Government Rosters . . .

Dear Editor:

Many of your members are interested in any progress being made to establish closer relations between the engineering profession and the Federal Government during both peace and war conditions.

It is my understanding that an effort is being made by our Washington representation to have more engineering ability used on work of a technical nature and that some progress has been made in establishing better relations with Civil Service which has, in the past, given little recognition to professional engineering.

Your story in the September issue of the AMERICAN ENGINEER gives a good idea of the available supply, and comment by Engineer Cutler in the October issue goes into the matter of "Rosters," about which I have intended writing you since receiving a questionnaire from The Engineers Joint Council.

My reply to this questionnaire was that I did not consider it worthwhile to decorate any more files with my life history after the experience I had on government work. I enclose my letter and their reply if only to show the relation between their efforts and our own.

The Engineers Joint Council now have some 50,000 completed questionnaires available for Government use but there will probably be the same duplication so well described by Engineer Cutler, and Civil Service will soon be advertising for men to compile more engineering rosters, but will avoid the word "engineering."

The policy seems to be that directives can take the place of engineering ability and you never know whether your latest one is superseded.

Until we get engineers in positions to select personnel for technical requirements there will not be efficient use made of the various rosters being prepared. It would seem that registration under State laws would receive more recognition by the Federal Government and technical procurement as enhanced by taking into account requirements fulfilled. If registration is intended to protect the public it might be considered an asset in public service.

One other item that deserves consideration is the rating on the basis of points obtained in military service. With due regard to the merit of finding jobs for veterans, I think the application to technical positions filled them with men who knew nothing about the work involved but this is not unusual under Civil Service.

Public recognition for the engineering profession dictates continuous effort to have more public problems solved by engineers and all of us will feel that our dues are a good investment if you can get results nationally.

H. BURT FOOTE, P.E.,
Avon Lake, Ohio.

Housecleaning . . .

Dear Editor:

It is good to see that something is being done about the engineer, his position in industry, his station in society. There of a necessity, must be a beginning, too bad you cannot start some two thirds the way down the line. As engineers, however, we should be able to cover the first lap with a minimum of "Wheel Spinning."

Prior to gaining real recognition, public wise, the Medical Profession had to clean out their own nest, the Dental Profession had to deal the same blows. The C.P.A.'s had to crush the unscrupulous within their ranks and the Attorneys are at constant war with the "Ambulance Chasers."

What are we doing to clean our own linen?

It is impossible, regardless of the enterprise, to expect recognition until it is an established fact that the vast majority of your organization are above reproach. This is particularly true of a professional man.

I believe, Therefore, That proper steps must be taken to stop malfunctions among registered engineers. For example: Bidding for work, cutting fees, allowing others to make analysis under your seal, and in general acting in ways unbecoming a professional man.

Moral Ethics must be established so solidly that there be no room for those who think and act otherwise. Once having gained this objective within our ranks the public, in all probability, will accept our profession without further ado since such a program can not be carried on quietly.

Let's get out the axe, gentlemen, and let the chips fall where they may.

WILL D. SAMPSON, P.E.,
San Antonio, Texas.

Definition of Terms . . .

Dear Editor:

In the November issue of the AMERICAN ENGINEER there appeared a letter by Engineer Lane on the subject "Is Engineering a Profession?" Mr. Lane takes exception to the meaning of the word "engineer" and concludes that "Engineering is not a profession as long as a steamfitter can call himself a heating engineer, a radio mechanic an electrical engineer, a boiler tender a stationary engineer, etc., and a college graduate with an engineering degree is also called an engineer."

To dispute Engineer Lane's argument, I will grant that there are even more encroachments on the engineering profession than those he mentioned. There are also laundry engineers, x-ray engineers, stage engineers, window dressing engineers, etc. Yet, I refuse to admit that engineering is not a profession. I do admit that these so called unprofessional engineers who in most cases are not even good mechanics, and whose education does not reach above the high school grade, are not only a disgrace, but are a cancer on the profession. Our problem therefore is to devise a formula by which we could stop the reckless use of the word "engineer" by various tradesmen.

Engineer Lane's solution of the problem, is to select some Latin or Greek word that could be used as a substitute for the so very confusing word "engineer." That, in my opinion is equivalent to giving up the ship. A saner and more practical solution is the new registration laws under which a man must prove to be the possessor of an Academic degree and pass a pretty stiff examination before he can be qualified to practice engineering. Also the adoption by prominent engineers of the prefix "Professional" to the word engineer, emphasizes the difference between "engineers of the College type" and persons commonly characterized as operating engineers or boiler engineers, etc.

The relationship between engineers and other professions brings out the following facts. The medical profession prohibits one to call himself doctor of medicine, unless he is a doctor. The law profession prohibits a man to practice law unless he is a lawyer. The same is true with the Dental profession. Why then should the engineering profession permit men to call themselves engineers when they should be called by their respective trade names?

My answer is, that the engineers have a job to do. To eradicate the above mentioned encroachments on the profession requires the effort of all engineers and architects. For this I propose

(1) A strong society of professional engineers and architects embracing 100% membership.

(2) When this is achieved, we should

(*Continued on page* 31)

It's Good Business To . . .

Fill Out The Coupon And Get YOUR Firm On New NSPE Roster!

The national headquarters of NSPE in Washington, D. C. is constantly receiving requests for the names of firms doing work in various fields of engineering. These are sometimes requested by locality, types of work, or specific problems involved.

To benefit our members, and to be of service to commercial organizations and government agencies in search of data, NSPE is attempting to set up a roster of engineering firms. The coupon below will supply all the information needed. If you would like your firm to be listed on the NSPE Roster of Engineering Firms, fill out the coupon below and MAIL IMMEDIATELY to NSPE, 1121 15th St., N.W., Washington, D. C.

ROSTER OF ENGINEERING FIRMS

FIRM .....

NAME .....

ADDRESS .....

Is your firm interested in foreign work? ☐ Yes ☐ No
(Check Fields of Interest Below)

☐ CIVIL

- ☐ Bridges
- ☐ Foundations and Soils
- ☐ Highways
- ☐ Waterways
- ☐ Water Works and Sewerage
- ☐ Surveying
- ☐ City Planning
- ☐ Industrial Buildings
- ☐ Dams
- ☐ Airports
- ☐ Structural
- ☐ .....

☐ MECHANICAL

- ☐ Heating and Ventilating
- ☐ Automotive
- ☐ Welding
- ☐ Power Plant
- ☐ .....

☐ ELECTRICAL

- ☐ Accoustical
- ☐ Illuminating
- ☐ Power Plant
- ☐ Transmission
- ☐ Railway
- ☐ Communications
- ☐ Electronics
- ☐ .....

☐ CHEMICAL

- ☐ Oils and Gases
- ☐ Plastics
- ☐ Rubber
- ☐ .....

☐ INDUSTRIAL

- ☐ Management
- ☐ Safety
- ☐ Materials Handling
- ☐ Time and motion
- ☐ .....

☐ AERONAUTICAL ☐ AGRICULTURAL ☐ ARCHITECTURAL ☐ CERAMIC

☐ MARINE ☐ MINING & METALLURGICAL ☐ PETROLEUM ☐ TRAFFIC

CLIP COUPON AND MAIL TODAY

Around The Nation With Our Members

Singstad Addresses Recent Meeting Of Philadelphia Chapter

The Philadelphia Chapter of the Pennsylvania Society met on December 7 at the Engineers' Club in Philadelphia. The feature of the evening was an address on "Salaries and Fee Schedules" by Ole Singstad, P. E., who is Chairman of the NSPE committee in charge of this activity.

Mr. Singstad is a member of the New York State Society and is a prominent Civil Engineer, being outstanding in the field of Tunnel Design. He is a member and past president of numerous Engineering Societies and has been knighted by both Belgium and Norway.

In addition, Mr. George Kelso, P. E., of the Philadelphia Chapter, PSPE, presented a short talk entitled "Behind the Iron Curtain." He traveled 5,000 miles inside Russia during 1945 and 1946 and was not restricted to Moscow. His job there was working with Russian engineers on design, construction and operation of petroleum refineries acquired through Lend-Lease. Kelso accompanied his talk with illustrated slides.

The Chapter's guest for the evening was their Scholarship recipient, John Westenberger, who is now a freshman at the Drexel Institute of Technology.

Wilson Addresses Milwaukee Chapter, Wisconsin Society

The Milwaukee Chapter of the Wisconsin Society met at the ESM Building in Milwaukee on November 14. Dinner was served at 6:30 and followed with a motion picture "Build With Steel." The Chapter then heard an address on "Industrial Mobilization" by W. E. Wilson of the Milwaukee plant, General Motors Corporation.

Mr. Wilson presented his personal observations on the potentials, requirements, and problems facing U. S. Industry in the current and future Mobilization Program to arm this country and its allies for maintaining peace throughout the world.

Georgia's Peach

Miss Anne Bonds, E. I. T.

Georgia Society Takes New Step— Invests In Bonds

Miss Anne Bonds, E. I. T., is the first woman in the history of the Georgia Society to be admitted to the membership of that organization.

The attractive Miss Bonds is now employed as an engineer-in-training with the Georgia Power Company, and after four years of experience, she will take an examination, and with the approval of the State Board of Examiners, become a licensed electrical engineer.

During her early high school days she decided that she wanted to be an electrical engineer like her father, E. R. Bonds, P. E., member of the Georgia Society, who is an executive with the Cleveland Electric Company.

Upon her graduation from North Fulton high school in Atlanta, Miss Bonds applied for admission to Georgia Tech, the only State-supported school offering engineering in Georgia. Her application to enter Tech was turned down, however, but she was accepted at Auburn Polytechnic Institute, where she entered in the fall of 1944. She was graduated from API in June of 1950 with a Bachelor's degree in Electrical Engineering.

During her college years, she waged a one-woman battle to gain admission to Georgia Tech. Her efforts were publicized by the *Atlanta Journal* and the *Atlanta Constitution* recommended editorially that the Board of Regents open Tech's doors to co-eds as day students.

The legislative committee of the Georgia Federation of Business and Professional Woman's club became interested in Miss Bonds' case, and appealed for her before the Board of Regents. But the regents voted to continue the ban on women at Tech because the school "was fearfully overcrowded and lacked dormitory space for women."

Even at Auburn Polytechnic Institute, Miss Bonds was a girl among men. Her class-mates kidded her a lot, calling her "Dynamo" and "Short Circuit." Auburn engineers still chuckle over the time Dr. Luther Dunstan, 84-year-old head of the electrical engineering department admired a problem Miss Bonds had sketched on the blackboard and called upon her to explain it. As she walked toward the blackboard, he innocently remarked, "Mighty nice little figure you've got there, Miss Bonds."

This feminine engineer really likes her work and says, "I wouldn't work like those home economics girls for anything. I had much rather make a calculation in symmetrical components than cook."

Miss Bonds hobbies include alumnae work for her sorority, Delta Zeta, classes in ballet and reading. In addition she also experiments in mechanics, "on a 1936 car that will not run. If the Board of Examiners does not come across with an electrical license, maybe I'll apply for one in mechanical engineering."

Highway Engineers To Hold Annual Meet in New York

The 12th Annual Convention of the New York State Association of Highway Engineers will be held in Rochester, New York, March 28, 29 and 30, 1951.

Dean Woolrich Is Honored By Travis Chapter Of TSPE

The Travis Chapter of the Texas Society honored Willis Raymond Woolrich, Dean of Engineering, University of Texas, Austin, Texas as "outstanding engineer of the year" at a recognition dinner held on November 14 at the Hotel Stephen Austin in Austin, Texas.

Woolrich, a native of Wisconsin, attended the University of Wisconsin where he studied electrical and mechanical engineering. After spending some time in industry, he taught at Depauw University and later was employed by the International Harvester Company. He was associated with the engineering faculty of the University of Tennessee from 1916 until 1933. For the next three years he was director of the Agricultural Industries Division of the Tennessee Valley Authority, at which time he became Dean of Engineering at the University of Texas.

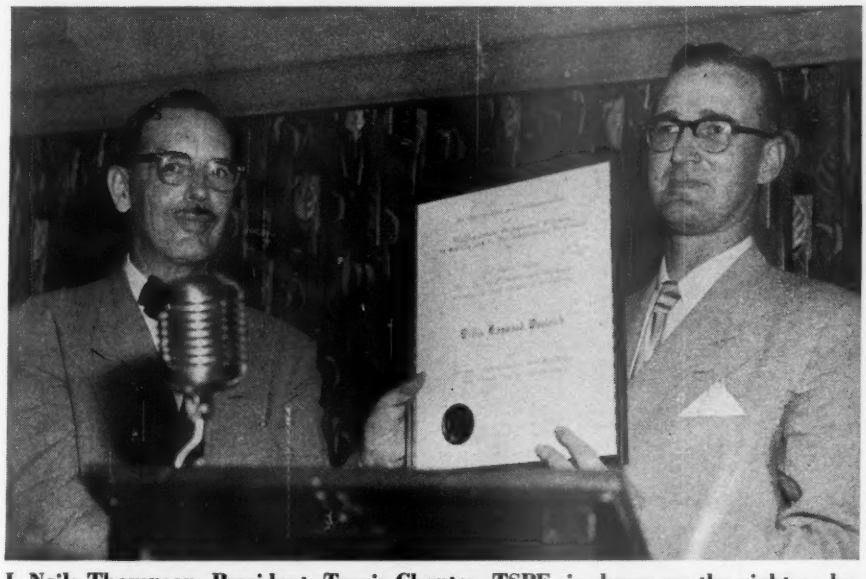
He has served as Chief Scientific Officer to the American Embassy in London, President of the Texas Academy of Science, Vice-President and member of the Council of the American Association for the Advancement of Science, and member of the National Research Council and of the Fulbright Commission of Great Britain.

The civic and social responsibilities of the professional engineer were highlighted in Dean Woolrich's address to the Chapter when he said, "We of the engineering profession have more to do with the conservation of our nation's resources than any other group. Those resources can be divided into three types: natural, education and equipment, and social and religious. As engineers we are deeply interested in each of these three, but by simple graphical mathematics it can be readily proven that the control resource is the religious and social ideals of a people.

"If we would take our full responsibility then to be complete engineers, we must assume our full obligation in not only materials, not only in education and equipment, but in the highest order of human engineering of which we are capable. Our greatest opportunity and obligation should be to unite together for a common cause called professional unity. Together we can assist our community, state and nation."

Dean Woolrich is a member of the Travis Chapter, TSPE, State Chairman of the Education Committee, TSPE, and member of the National Society.

Travis Chapter Honors Woolrich



J. Neils Thompson, President, Travis Chapter, TSPE, is shown on the right as he presents a certificate for "outstanding engineer of the year" to Dean W. R. Woolrich, Dean of Engineering, University of Texas, at an honorary dinner held by the Chapter on November 14 in Austin, Texas.

Arkansas P.E. Secures Opinion From Attorney General

At the request of Mr. Fred L. McDonald, P. E., member of the Arkansas Society, an opinion has been rendered from the Attorney General of Arkansas concerning installation of water treatment equipment under a municipal contract combining a rental and option to buy provision.

Excerpts of a letter from Attorney General Ike Murry to McDonald show that the opinion is favorable to registered professional engineers. In the second paragraph of the letter Murry says, "The pertinent part of Section I of the Act provides that neither the State nor any county, township, city, town or village shall engage in the construction of any public works involving engineering, unless the plans, specifications and estimates therefore have been made by, and also that the construction must be executed under the supervision of a registered professional engineer, licensed to practice under the laws of this State. However, if the project does not exceed $5,000 in cost, the Act does not apply . . . If the installation of this particular water treating equipment for the treatment of water, so that it will be safe and sanitary for human consumption does involve engineering, then it is my opinion that it will be necessary for the plans, specifications and estimates to be made by a professional and licensed engineer, and that the construction be executed under his supervision."

Lakeland Chapter Of Florida SPE Hears Address On Parking

A meeting of the Lakeland Chapter, Florida SPE, was held on November 4 at the Cadet Restaurant in Lakeland. The speaker of the evening was Mr. Harry H. Edwards, P. E., who spoke on "The Problem of Automobile Parking."

Mr. Edwards called attention to the growing problem of parking cars due to their rapidly increasing numbers and use. As a possible solution of the problem, he offered the suggestion that "off-street" parking as now provided by parking lots could be supplemented by second story or roof parking whose construction warranted this use.

Joint Meeting In Rochester Hears Talk On Civilian Defense

The Monroe County Chapter of the New York State Society held a joint meeting with the Civil Defense Committee of the Rochester Chamber of Commerce on November 28 in the Chamber of Commerce Building in Rochester.

The speaker of the evening was Colonel Chester Lichtenberg, P. E., member of the Indiana Society and Director of Civil Defense of Fort Wayne and Allen County, Indiana. His topic was "Engineering Aspects of Civilian Defense."

Shown above at recent meeting of the Midwestern Chapter, PSPE, are, left to right: Robert A. Blackburn, President, PSPE; S. L. Stolte, President, NSPE; and George R. Emery, President, Midwestern Chapter, PSPE.

Stolte Addresses Midwestern Chapter, PSPE, In New Castle

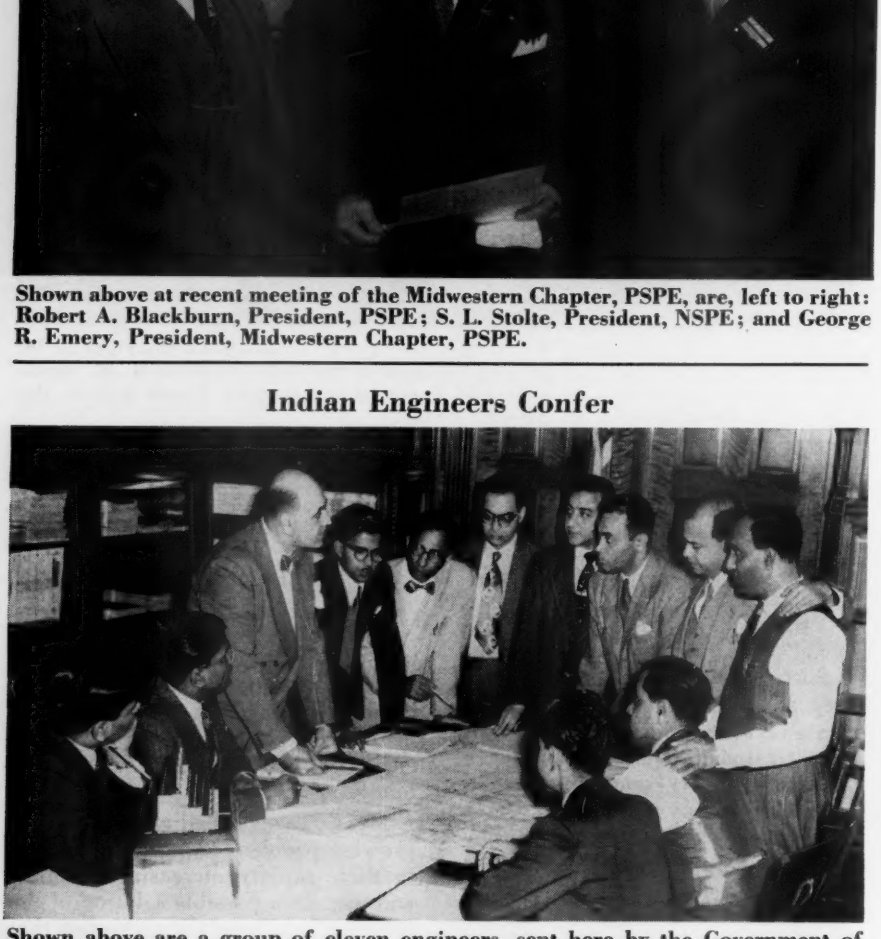
Forty members and guests of the Midwestern Chapter of the Pennsylvania Society heard Sidney L. Stolte, President, NSPE, when he addressed a dinner meeting of the Chapter at the Castleton hotel in New Castle, Pennsylvania on December 2.

The rapid growth of NSPE and many of its activities were described by President Stolte in his address to the group.

Other special guests of the Chapter included Robert A. Blackburn, P. E., and John T. West, Jr., P. E., President and Secretary respectively of the Pennsylvania Society.

A special feature of the business meeting was the announcement of the election of new Chapter officials for the year 1951. Replacing President Herman F. Barsun, P. E., of Sharon will be George R. Emery, P. E., of Stoneboro, District Bridge Engineer with the Pennsylvania Department of highways. Other officers elected were Russell H. Druschel, P. E., Engineer with the Pittsburgh Limestone Corporation, New Castle, Vice-President; Paul Evans, Jr., P. E., Westinghouse Electric Corporation, Sharon, Secretary-Treasurer; and L. C. D. Greenough, P. E., of Butler and Walter J. Zimmerman, P. E., of Punxsutawney, National Directors.

Indian Engineers Confer



Shown above are a group of eleven engineers, sent here by the Government of India, at a "briefing" session in the Kuljian Corporation's headquarters in Philadelphia. Their visit to America ends with their return to Calcutta to operate the new Bokaro Power Plant. Mr. H. H. Levonian, Chief Engineer, Kuljian Corporation, is third from the left.

Indian Engineers Study American Power Project Methods

After a ten months' visit and intensive training course in this country, a group of eleven engineers sent here by the Government of India have returned home to apply American methods to a vast new power project in their native land. They will form the chief members of the engineering staff which will operate the new Bokaro Steam Power Plant in the Damodar Valley project, one of the largest ever undertaken in the East.

A spokesman for the group, K. M. Chinnappa, likened the huge enterprise to our own TVA. "It is not quite as big," he explained, "but the pattern is much the same—a series of eight dams along the Damodar River, very similar to the dams on the Tennessee River—and the objects are the same, to provide the benefits of irrigation, flood control, and cheap power to an immense area. This is the first big step in Prime Minister Nehru's long-range plan for the industrial build-up of India, and we are naturally proud to be a part of it. We have been made to feel during our visit here that the project is almost as important to America as it is to India!"

The training of the group during their stay here was supervised by The Kuljian Corporation of Philadelphia, to whom the Indian Government has awarded the contract for the design, engineering and construction of the Bokaro Steam Power Plant. In addition, the engineers studied operating methods at over a dozen large utility plants in the East and Middle West. They also visited the General Electric plant in Schenectady, and other manufacturing plants supplying the major equipment for the Bokaro Station.

All of the group are native-born Indians, and received their scientific and technical training in Indian schools and universities. For one year after it is completed, the plant will be operated by American personel in the Kuljian Corporation's employ. Then the operation of the plant will be turned over to the Indian engineers.

The Bokaro Plant, the cost of which will exceed $35,000,000, will be the first high-pressure steam-generating plant in the Far East. One of its unique advantages is the fact that the biggest strip coal mine in the world, the Bermo coal field, is only three miles from the plant. Located about 200 miles northwest of Calcutta, the new project will provide light and power for a large territory in the very heart of India.

A model of the Bokaro plant has been presented to Prime Minister Nehru, who hailed the project as vitally important to his program for raising the industrial strength and defensive power of India.

5-Man Board Of Engineers Named for D.C.

The District of Columbia Commissioners recently appointed a five-man board of engineers to administer a new law requiring the licensing of all practicing engineers here.

Board members, recommended by District Director of Inspection Robert H. Davis, are:

Daniel C. Walser, civil engineer member, president, named for a five-year term; Leo H. Cleary, electrical engineer member, secretary, four years; M. X. Wilberding, mechanical engineer member, three years; Martin T. Bennett, chemical engineer member, two years, and Lee D. Purnell, unclassified member, one year.

Deputy Director of Inspection J. J. Ilgenfritz said the board will meet soon to set up the machinery for passing on qualifications.

The new law requires the licensing of all persons now practicing engineering, as well as newcomers to the field. After a date that will be set, the District will approve no plans involving an engineer unless the person has been licensed, Ilgenfritz said.

Arrange Style Show for Mahoning Valley Auxiliary

Pictured above are the members of the Ladies Auxiliary of the Mahoning Valley Chapter, OSPE, who arranged a fashion show held recently at the Pleasant Grove Presbyterian Church in Youngstown, Ohio. The ladies pictured are, left to right: First row: Mrs. Richard B. Waugh, President; and Mrs. Anthony Sgambati, Project Chairman. Second row: Mrs. Alex Lowinger, Program Chairman; Mrs. G. R. Glasgow, Social Chairman; and Mrs. Francis A. Reilly, Publicity Chairman.

Pictured on the left are the new officers of the North Dakota Society, whose election was announced at the tenth annual meeting of the Society, held in Fargo, North Dakota, on November 16, 17 and 18. They are, left to right: Joseph Kirby, Secretary-Treasurer; John A. Oakey, President; R. H. Myhra, Vice-President; and George Teskey, National Director. Shown on the right is Sidney L. Stolte, President, NSPE, as he addressed the banquet held on November 17. Other guests at the speaker's table included, left to right: Mr. and Mrs. J. A. Oakey; Mrs. Murray Baldwin; Mayor Murray Baldwin; and E. L. Lium, President, NDSPE.

North Dakota SPE Holds Tenth Annual Meeting At Fargo

The Tenth Annual Convention of the North Dakota Society was held in Fargo, North Dakota at the Gardner Hotel on November 16, 17 and 18. Mr. Murray A. Baldwin, Mayor of Fargo, welcomed the group, and Mr. E. L. Lium, the Society's President, responded.

Frank Cave of Bismarck, Secretary of the State Board of Registration For Professional Engineers, reported to the Society for the Board. "The only legal justification for the registration law and for our banding together as registered professional engineers is the protection of the public," said Mr. Cave.

Prior to the commencement of the session on the morning of the 17th, the Society was entertained at a Smoker on Thursday evening, sponsored by local contractors and equipment men.

Mr. Sidney L. Stolte, National President of the Society, spoke at the banquet held Friday night. Mr. Stolte stated that engineering talent must be made available not only to the military service but also on the civilian fronts. He declared it is essential that a portion of promising young engineers and scientists be deferred while students so that their talents could be developed for the use of their country on all fronts. Mr. Stolte continued that engineers must be available for the armed services, for industry, and for civilian work. Engineering know-how must be available to all of the spheres.

Employment Practices Discussed At Recent Pittsburgh Meeting

The November meeting of the Pittsburgh Chapter, PSPE, was held at Dutch Henry's Restaurant in Pittsburgh. "Employment Practices" was the title of the panel discussion, and representatives of Industry, Public Employment and the Consulting Engineer discussed their specialties. The floor was then opened to the Members for their comments and questions. As an added feature, the registration certificates were presented to newly registered Professional Engineers and E-I-T's in this district.

Address on Korea Heard By Midwestern Chapter, Penn Society

The Midwestern Chapter of the Pennsylvania Society met on November 4 at the Willard Hotel in Butler, Pennsylvania to hear an address by Mr. Marcus A. McCulloch on "Korea."

Mr. McCulloch, who is Program Director of Radio Stations WPIC and WPIC-FM, served as a 2nd Lieutenant in the Pacific from August 1945 until August 1946. During this time, he spent 10 months in the Seoul area of Korea where he acted as Assistant to the Adjutant General for the 24th Corps, which was then the top Command in Korea.

McCulloch used two Government documentary films, "Present Day Korea" and "Fighting in Korea" to supplement his address.

Plastics Engineers To Hold Annual Tech Meeting In New York

The Society of Plastics Engineers will hold its Seventh Annual National Technical Conference on January 18, 19 and 20 at the Hotel Statler in New York City.

RE: Mobilization

The Department of the Air Force announces opportunities for direct commissions in the United States Air Force Reserve and the Air National Guard of the United States, in order to meet its mobilization requirements.

Of particular interest to engineers are such technical appointments as Intelligence Production Specialists, Design and Development Officer, Production Management Specialist, Special Investigations Technical Officer, Industrial Planning Specialist, Industrial Specialist, Topographic Photogrammetry and Cartographic Specialists, Weather Officers, Armament Officers, or Communication Specialists.

When writing concerning requirements, qualifications and method of application, refer to Air Force Regulation No. 45-15, and mail your inquiries to the Department of the Air Force, Washington 25, D. C.

The Department of Defense urges that all reserve officers bring their MOS numbers up to date.

Robertson Addresses Miami Chapter, FSPE At Recent Meeting

Dr. Harry Robertson, professor of nuclear physics at the University of Miami, recently addressed the Miami Chapter of the Florida Society on the possible effects of an atomic bombing of Miami.

He said that Greater Miami's best protection against an atom bomb is the fact that nobody is apt to bomb the area. In addition, he advised against any wide-spread effort to rebuild or strengthen houses in the area to protect against atom bombs. First, he stressed the danger of Miami being bombed seems remote because it is not of strategic military value and importance. Second, he added, because of the building code which makes houses hurricane-proof, most houses here are of sturdy construction anyhow.

Dr. Robertson had no encouragement for those who think atomic energy will be harnessed to provide an industrial revolution in the near future. He questioned whether atomic power would be cheaper than coal or fuel oil, but said that where a concentrated source of power is needed, it could be valuable, since pound for pound it is 10,000,000 times more concentrated than coal.

Arkansas SPE Fall Meeting Features Varied Program

The Fall Meeting of the Arkansas Society was held at the Lafayette Hotel in Little Rock on December 15.

The meeting opened with a luncheon at which Mr. L. L. Dresser, Vice-President, NSPE, spoke to the Arkansas group on the subject, "The National Society and Your Part In Its Program."

The luncheon was followed by the annual business meeting, which included a canvassing of ballots for the annual election of officers. A short color film was then shown concerning the construction of the $11,000,000 Little Rock Veterans Administration Hospital.

In the evening there was a social hour followed by a banquet for the members, ladies, and guests. After dinner a talk on the subject "A Glance Behind the Iron Curtain" was given by Mr. James W. Moonan, based on personal experiences with the Allied Commission for Austria during the period 1946-1949. Announcement of election results and installation of officers closed the meeting.

Pittsburgh Chapter Holds Annual Meeting At University Club

The Pittsburgh Chapter of the Pennsylvania Society held its Annual Meeting on October 26th at the University Club in Pittsburgh. More than 400 members and guests attended the banquet, which was followed by a program of speeches, awards and dancing.

Mr. Ross Leffler, Chief of the Allegheny County Civil Defense Council, presented a stimulating talk on the Civil Defense Program in Western Pennsylvania. As a result of this talk, the Board of Direction of the Pittsburgh Chapter approved a measure to authorize the Chairman of the Public Relations Committee to offer to the Civil Defense Group the free consulting services of its Chapter's members as a patriotic and public service. To carry out this plan, the Chapter will organize special committees, ask for volunteers from its membership, and do such other things as may be necessary in accordance with the programs set up by the Allegheny County Civil Defense Council.

Robert A. Blackburn, President of the Pennsylvania Society, spoke briefly and then presented an award of Honorary Membership to Dr. Elmer A. Holbrook, formerly Dean of the Schools of Engineering and Mines at the University of Pittsburgh.

Martin C. Knabe, Past President of the Chapter, was presented with a citation for his many years of active work in the Chapter.

Tell Us About YOUR Group!

Is your Chapter or Society getting adequate coverage in the AMERICAN ENGINEER? If not, please remember that our staff is not psychic . . . WE HAVE TO HEAR FROM YOU IN ORDER TO WRITE IT UP! Get behind your officers and remind them to get the news in to us, or if you see something you think might be of interest, just send it in. Be sure and tell us who, what, when and where, and remember to include *full* names. Photographs will also be useful, if properly captioned. How about it? Instead of just a few groups getting all the publicity, let's see *your* Chapter or Society in print next issue.

Positions Open

As a special service to its readers, the *American Engineer* presents the following list of job openings.

There now exists a limited number of vacancies in United States Air Force Headquarters at the Pentagon for Engineers with education and/or experience in one or more of the following fields: Agriculture, Architecture, Chemistry, Civil Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, Metallurgy, Mining, Structural Engineering and allied fields who also possess Photo Interpretation experience or potential, in the following jobs with grades and salaries listed:

Photo Intelligence Specialists GS-9 ($4,600 per annum, starting salary) through GS-12 ($6,400 per annum, starting salary).

Civil Service grades assigned will depend largely on education and/or equivalent experience in any of the above listed fields. Photo Interpretation experience is desirable but not absolutely required. Every effort will be made to place qualified applicants in positions commensurate with their education and experience. Inquiries regarding these positions and requests for the required Civil Service application forms should be made to the address below:

Photo Intelligence Section
Reconnaissance Branch
Directorate of Intelligence
Headquarters, United States Air Force
Washington 25, D. C.

Engineer, GS-9 to GS-12, $4,600 to $6,400 a year. All branches of engineering including Aeronautical, Civil, Electrical, Electronics, Mechanical, Naval, Architecture, Petroleum, etc. To qualify for the examination, applicants must meet a basic requirement of appropriate college study or experience or a combination of the two, and in addition they must have had professional engineering experience. Pertinent graduate study may be substituted for all or part of this professional experience, depending upon the grade of position. No written test will be given.

Information and applications are available at most first and second-class post offices and at Civil Service regional offices. Applications will be accepted until further notice by the U. S. Civil Service Commission, Washington 25, D. C.

Engineers, GS-9, $4,600 a year and GS-11, $5,400 a year. NOTE: Particular attention is invited to the fact that there is an URGENT need for qualified engineers who have professional specialized experience in the following fields of engineering:

AERONAUTICAL: Aircraft Detail Design, Aircraft Development Control, Aircraft Flutter and Vibration, Aircraft Stress Analysis, Aircraft Structural Development, General, Parachute Development, Power Plant Development, Production Aircraft, Production Analysis, Research.

ELECTRICAL: General, Testing.

ELECTRONICS: General, Instrumentation, Radio, Wire Communication.

GENERAL: Aircraft Control Systems.

MATERIALS: Cotton, Leather, Plastics, Rubber, Synthetic Fibers, Textiles.

MECHANICAL: Aircraft, Aircraft Armament, General, Photographic.

THESE EXAMINATIONS ARE OPEN TO THE GENERAL PUBLIC

PLACES OF EMPLOYMENT: Wright-Patterson Air Force Base, Dayton, Ohio, and 862nd AF Specialized Depot, Dayton, Ohio.

To quality for these positions, applicants must have completed a 4-year college engineering course or have had 4 years of technical engineering experience, or a combination of such education and experience. In addition, they must have had at least 2 years of professional experience. Graduate study in engineering may be substituted for the experience required for the $4,600 a year jobs and for part of the experience required for those paying $5,400 a year. No written test will be given.

Applications for this examination will be accepted until further notice and must be filed with the Executive Secretary, Board of U. S. Civil Service Examiners, Wright-Patterson Air Force Base, Dayton, Ohio.

Additional copies of the announcement or the application forms will be sent to you upon request. Applications may also be obtained from most first or second-class post offices or from civil service regional offices.

The Public Health and Welfare Section of the Supreme Commander Allied Powers is greatly in need of sanitary engineers whose responsibilities will be to direct and coordinate a sanitation program in a designated region of Japan. Such persons will work with a public health advisor rendering assistance and technical advice in the field of sanitary engineering and will maintain liaison with Japanese bureaus and civilian agencies.

Desired qualifications include a degree in sanitary or civil engineering with a minimum of five years' specialized experience in sanitation work. The salary for these positions is $6,400 per annum plus living quarters and the minimum tour of duty is two years. Transportation to and from Japan is at government expense. Interested candidates should make application directly to:

Recruitment Section
Overseas Affairs Branch
Civilian Personnel Division
Office of the Secretary of the Army
Department of the Army
Washington 25, D. C.

The U. S. Civil Service Commission has announced examinations for Electronic Engineer and Physicist with U. S. Navy Underwater Sound Laboratory and with Air Force Cambridge Research Laboratories. Salaries range from $4,600 to $8,800 a year. For further information apply to U. S. Civil Service, Washington, D. C.

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NEWS TO NOTE

Virginia

The Northern Virginia Chapter of the Virginia SPE met on December 8 at the Alexandria Recreation Center Building in Alexandria, Virginia. The feature of the program was the showing of an Isaac Walton movie on the pollution of the Potomac River in the Alexandria, Arlington and Fairfax areas, by a member of the Pollution Abatement Committee of the Alexandria Isaac Walton League.

Illinois

The Annual Meeting of the Illinois Society will be held in Urbana on February 1, 2 and 3, 1951. The banquet and all meetings will be held in the Union Building of the University of Illinois.

District of Columbia

The District of Columbia SPE held its Annual Smoker on November 27 at Naylor's Restaurant in Washington, D. C. Entertainment was furnished by the Alexandria Barber-Shop Quartet.

Groups Seek Answer

(*Continued from page* 13)

credited engineering and science schools would receive a proportionate allowance of the total number of deferred students. However, there would not be any aptitude or intelligence tests prescribed and it would be left to the schools themselves to select the qualified students within the allowed quota. After graduation a reasonable time should be allowed for the student to acquire the necessary experience to appropriately utilize the education, the NSPE Plan states.

As seen in the discussion of the Trytten Plan, this type of recommendation is criticized because it restricts educational deferments to particular fields of study deemed essential to the national defense. Thus it is obvious that one of the basic decisions must be on the broad question of deferment for any and all fields of study or for deferment for essential fields.

National Scientific Board Plan —Several organizations have suggested that the question of student deferments be tied in with a national board of scientific personnel. The board would have jurisdiction over scientific manpower for both civilian and military needs. Those accepted by the board would be placed in a special class and would be assigned by the board for military service, civilian assignment, or training.

It is believed that plans of this type will receive little serious consideration. General Hershey has expressed himself as strongly opposed to what he calls a "guild" system whereby engineers direct the assignment of engineers, chemists direct the assignment of chemists, and doctors direct the assignment of doctors. It is pointed out that if such a board were established for one essential profession it would have to be established for all other essential groups. The result would be a loss of control over an essential portion of the nation's manpower.

These, then, are the more important suggestions which have been publicly advanced to meet the problem. There are numerous other plans but in general they offer refinements and details on the above basic concepts.

General Hershey has clearly stated that selective service will not attempt a solution on its own. He feels that the problem is so important and so far-reaching that it must be resolved by Congress. It is by no means certain that Congress will approve any student deferment program despite the fact that it was widely acknowledged that the lack of such a program during World War II was a mistake. No less an authority than the President's Scientific Research Board reported in 1947: "In striking a balance among this complexity of war pressures, the Government decided against deferment of science students. In the light of the effect of the policy in contributing to the present shortage the wisdom of the decision seems dubious." But in 1947 the nation was at peace; this is still technically true but only those floating on the highest clouds do not recognize that as a practical matter the nation is now at war.

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Two Ohio Members Named As New City Managers

The Ohio Society has two new City Managers among its membership. Mr. Arch Robison, P. E., is City Manager of Celina, Ohio, and Mr. Herbert W. Starick, P. E., was recently named the first full-time City Manager in more than a decade in Middletown, Ohio.

Appointed in July of this year, Mr. Robison assumed his position after 41 years of engineering experience in public and private industry. A graduate of the University of Minnesota and a registered engineer in New York since 1924 and Ohio since 1939, he was formerly division manager of the Cincinnati Gas and Electric Company at Middletown. He served as Celina's manager in 1938 for a seven-month period.

Mr. Starick, a Dayton planning engineer, began his duties on November 1 after being unanimously appointed by city commissioners. A graduate of the University of Cincinnati, Mr. Starick has had wide experience in municipal administration. He has been employed as a member of the regional planning commission in Cincinnati, and as director of the Cincinnati planning board and zoning board of appeals. In 1942 he was appointed assistant planning director of Cleveland, and since 1944, he has been planning director of Dayton.

Arizona Chapter Participates In Joint Meeting

The Central Arizona Chapter, ASPE, participated in a joint meeting of the Arizona Engineering Societies on November 17 at the Pompeian Room of the Westward Ho in Phoenix.

Technical sessions were held on November 18 with luncheons and other arrangements being made by the individual Societies. A Chuck Wagon Dinner was held on Saturday night, to which all members were cordially invited to bring their wives and appetites.

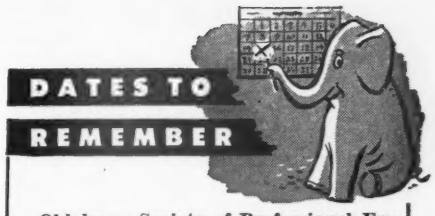
Los Angeles Chapter Holds Professional Engineering Forum

The Los Angeles Chapter of the California SPE met on October 10 at the Institute of Aero Sciences Building in Los Angeles. The feature of the evening was a Professional Engineering Forum. The meeting was preceded by a dinner at the French House Restaurant.

3,000 Engineers To Attend Meeting In San Francisco

More than 3,000 professional engineers will converge on San Francisco to attend the 3rd annual convention of the California Society to be held in conjunction with the Engineers Trade Show at the Hotel Whitcomb, January 18, 19 and 20. The California Society expects the largest attendance of highly specialized executives ever to assemble on the Pacific Coast for this event.

John L. Trebilcock, President of the California Society said, "in addition to technical sessions, the convention this year will feature an exhibit of industrial equipment, machinery, products and services. The Professional Engineers show will be a highlight event and will be of great interest not only to attending engineers but industrial buyers as well. Manufacturers will show and demonstrate their products to more than 3,000 potential customers. We extend a cordial invitation to Bay Area industrial people to attend the Professional Engineers' Show and help our Society carry our ideas for engineering betterment to their ultimate goal."



Oklahoma Society of Professional Engineers—Jan. 12 and 13. Biltmore Hotel, Oklahoma City.
California Society of Professional Engineers—Jan. 19 and 20. Hotel Whitcomb, San Francisco.
Texas Society of Professional Engineers—Annual Meeting. Jan. 25, 26 and 27. Bajer Hotel, Mineral Wells.
Wisconsin Society of Professional Engineers—Jan. 25, 26 and 27.
Illinois Society of Professional Engineers—66th Annual Meeting. Feb. 1, 2 and 3. Champaign-Urbana.
Michigan Society of Professional Engineers—Annual Meeting. Feb. 2 and 3. Wardell-Sheraton Hotel, Detroit.
Kansas Society of Professional Engineers—Feb. 23 and 24. Salina.
Minnesota Society of Professional Engineers—Feb. 21-24.

Speech and Movie Featured at Macon Chapter Meeting

The Macon Chapter of the Georgia SPE met recently at the Lanier Hotel in Macon. Mr. C. W. Roberts, Vice President and General Manager of the Macon Division, Georgia Power Company, gave an interesting talk on "Construction and Operation of Power Plants in Georgia." A film entitled, "Power of the South" was also shown.

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Big Business

(*Continued from page 7*)

In the early twenties we built a plant in West Virginia to manufacture ammonia and other chemicals by the application of pressures unheard of commercially up to that time. That was another long and expensive trip since it was more than ten years and many millions of dollars before that department began to show black ink on its profit and loss statement.

Nylon is at the same time one of our greatest successes and one of our greatest gambles. Basic research leading to this development was started in 1928 but it was not until 1940 and the expenditure of about 27 millions of dollars that we were able to sell the first pound made in a commercial unit.

Some of you may have heard that we have a new textile fiber in the making which we have called "Orlon" acrylic fiber. We are building the first commercial unit for its manufacture at Camden, S. C. We have hopes for that new product but I must admit that we do not yet know whether it will be a sheep or a goat. Before we find out, we will have gambled $7 million in research and $15 million in plant investment.

Nylon, ammonia, dyestuffs have been profitable items for Du Pont. But don't think for a minute that Du Pont stockholders were the only gainers. There were thousands of men and women who got jobs that never existed before. There were millions of consumers whose standard of living was raised by each such success. There is the country itself, stronger both in peace and in war. When these gambles pay off, *everybody* benefits.

And research itself is perhaps the greatest gamble of all. You often see only the successes described in high-sounding releases from our Public Relations Department. What you, as professional engineers understand is the long list of failures—the brave new ideas that don't pan out. I mention this with deep feeling because as a research engineer I had lots of those brave new ideas myself that ended in the trash can.

Statistics on failures are difficult to come by but it is a fair approximation to say that not more than one out of five research dollars pays off. That means simply that if the direct cost of nylon research is say five million dollars, there is perhaps twenty-five million dollars worth of unsuccessful research that has to be paid for by that one successful development. We are playing with very blue chips indeed.

And our success in the future, if we are fortunate enough to have it, will come not because we have taken business from someone else, but because we are able to keep that stream of new products and improved processes continually flowing.

ON many of these developments we have for seventeen years the sole right of manufacture by virtue of patents granted us under the laws of the United States. Nylon is one of those developments. But let me assure you that while we are the only manufacturer of nylon, we have in no sense a monopoly of the applications for that product. Nylon competes for the customer's dollar with every synthetic and natural textile fiber. Your wives may have their stockings, dresses and lingerie made of nylon, but you may be very sure that if price and quality are not competitive, the ladies will turn to silk, rayon, or in fact anything that better suits their fancy and their purse. If we are not successful in meeting the competitive requirements of the market place we may continue to be the only manufacturer, but we will have nothing but red figures on the balance sheet to show for it. And that is cold comfort indeed.

With our new products it is essential that we strive for the largest market, not for the highest price or the highest profit. We introduced cellophane many years ago and costs of manufacture by the methods used then forced us to sell it at $2.65 a pound. It was used initially only in wrapping luxury items, such as perfumes, bath salts, and fancy candy boxes. Some purchasers even thought it valuable enough to keep in their safes. Today, as a result of technological improvements by our engineers and increased volume, cellophane sells for around 50¢ a pound. Because of that low price, cellophane now protects the most commonplace articles and saves millions of dollars annually in eliminating waste and spoilage of food.

And so to strive for the largest market, at the lowest price that yields a reasonable return on our investment, is a policy which serves many ends. It is beneficial to the public in making available to them an ever-increasing flow of the goods and services they desire. It is beneficial also in creating new opportunities for employment, and, finally, it is profitable to us as a corporation and so provides our 100,000 stockholders with a return on their capital.

THERE is much misconception also about the relationship between big and little businesses. The idea has been put forward that big businesses grow by swallowing little businesses or by limiting their growth. Nothing could be farther from the truth. No little business could compete with us in nylon for the reason that no such business could bring together the capital and technical resources required for an efficient producing unit. We, on the other hand, have no interest in competing in spheres where we can make no substantial technical contribution, and there are many activities, particularly in fields of marketing and distribution, that small businesses can do better than we. It is, in addition, essential for us to pursue a cooperative relationship with those small businesses since they are the suppliers of our raw materials and the primary consumers of our finished products.

Let me cite an example. We make nylon yarn and sell it to whoever will buy. Your wife buys, let us say, a nylon blouse. Between the sale of that yarn and that blouse are the throwster who twists the yarn, the weaver who weaves it, the finisher who finishes and dyes it, the cutter who makes the garment, and the retail store that sells it. For the most part those are small businesses. They need us; we need them. We thrive together by virtue of a cooperative relationship. Perhaps I can put it for you quantitatively. Your wife pays about $1.50 for her nylon stockings. We get about 10¢ for the yarn that goes into them, and the difference represents the contribution, the opportunity, and the profit of the many smaller businesses that lie between us and the final consumer.

Had we the power and the desire,—which we do not,—to swallow these businesses or to drive them out of existence, we would indeed be killing the goose that lays the golden egg.

I HAVE written about big business and about monopoly. Let me say a word about the laws that regulate them. We have had on our books for many years the Sherman antitrust law. The Du Pont Company is now and has always been heartily in favor of that law and the safeguards it provides for our system of free, competitive enterprise. Unfortunately that law states an objective and prescribes no rules so that the ideology of enforcement is left to the shifting winds of political thought. This has led to continuing changes in interpretation as one court decision succeeds another. Unfortunately also, no practical statute of limitation applies,—so business frequently finds itself attacked for acts done many years ago in all good faith and with the best legal advice available.

I do not want to leave the impression that business, whether large or small, has never made mistakes. A

business is a group of people, subject to the same human frailties as people in any sphere of activity. We must not let the occasional error blind us to the overriding benefits our industrial system has brought. That system has made America the strongest nation on earth, and its free development will carry us to new heights.

The controversy which is rising to a climax in this country over so-called "monopoly" and big business is a matter of vital interest to professional engineers.

This nation has grown strong by allowing the forces of the market place to rule—the business laurels falling to whoever is able enough to win them, the law present to insure fair play. I do not see that there is any tenable alternative. In the national interest no steps must be taken that penalize success and efficiency. We dare not hobble the willingness of a business to venture by refusing it the fruits of its success or by holding out the doubtful privilege of government regulation when that success has been achieved.

It is vital to the strength, happiness and future standard of living of the people of this country that we permit the free growth and development of large businesses capable of taking the great risks involved in the difficult industrial tasks, for we cannot have what we do not produce.

I have spent many of my working years in the fields of engineering. I learned there a fundamental principle—never to discard the results of a well-demonstrated experiment in favor of an untried hypothesis. I would urge that that principle never be forgotten in dealing with these vital problems.

(Some of the material for this article was taken from a speech made by Mr. Greenewalt before the Washington, D. C., Press Club.—EDITOR.)

Letters

(*Continued from page* 20)

drive to unify all engineering societies.

(3) Then through enacted legislation and the press, to make it criminal for any person to call himself "engineer" if he is not one as prescribed by law.

In conclusion, let me reaffirm my belief in a strong society of professional engineers and architects as the vanguard and hope for better days to come. Let us make the N.S.P.E. the rock foundation upon which to build our cultural values and strengthen our rights as engineers, to better economic and moral standards in the profession.

WM. CREPEA, P.E.,
Brooklyn, N. Y.

Red Faces . . .

Dear Editor:

I was quite surprised to see the article "The Hospital Engineer" in your official magazine. (AE, November, 1950.)

I have long felt that in order to maintain our standing as *professional* engineers we should avoid our subdivision (as in so-called *plastic* engineering or *instrument* engineering) and the abuse of the term by applying it to sub professional activities.

In your *Hospital* engineer you combine an orderly, building superintendent, and handyman, and reduce the professional engineer to the ridiculous.

RALPH M. PERSELL, P.E.,
New Orleans, La.

► Our hats are off to Engineer Persell. AE erred in titling the article referred to, "The Hospital Engineer." "The Professional Engineer In Hospital Work," would have been nearer the mark.—*Editor.*

What About The Future . . .

Dear Editor:

The growth of unionism and the definite improvement in labor's economic status has proved the old adage that united we stand, divided we fall. This article is not intended to foster unionism in engineering, but only to indicate that cooperative efforts are required to better the position of the Professional Engineer and his necessary helpers such as draftsmen and unlicensed engineers.

Great progress has been made in developing state laws prohibiting unlicensed practice and preventing unlicensed men from holding public offices carrying the title of engineer. This is only a beginning and the greater task is to tap the industrial field where violations are more widespread, the accident hazard is greater and abuses more prevalent. Supervision by licensed engineers of purchase, installation, maintenance and alterations of structures, machines and equipment is not required or mandatory by law and here is the field where we should next concentrate our efforts.

Here also we will find the greatest resistance, both by industry and unlicensed engineers. In industry, by management personnel with limited knowledge who feel they are eminently qualified to make decisions of an engineering nature, and by supervision who will be reluctant to relinquish their previous authority to make important decisions. Engineers who do not have the necessary qualifications to become licensed, either through lack of training or experience, would also fight any mandatory program as it would definitely limit their opportunities for advancement.

A good engineer with confidence in his ability would have no fear of taking the examination for registration. There is no attempt by the State Registration Boards to prepare a difficult test, but only to check the applicants general knowledge of the basic sciences before qualifying him to make final decisions which would affect the health and safety of the general public. Industry, for its own sake, should demand that only a licensed man should have supervision of all engineering problems in its plants, but the percentage of licensed men in factories and institutions is low. We find that hospitals, hotels, institutions, schools and other places of public assembly place their trust in other than licensed personnel. Does the fault lie in lack of aggressiveness of our group in bringing these facts before the public or are we lacking in the essentials of good management relations and unable to handle top responsibility?

Obviously, the plant which follows the advice of a licensed man would be at an economic disadvantage unless all competitors were all in the same position. This statement does not mean that we are not cost conscious, but only that hazardous short cuts would not be tolerated by a man who had a license at stake, while an unlicensed man would suffer no loss in making decisions which violated good engineering principles. Read the daily newspapers, note the frequency of serious and fatal industrial accidents, note the disposition of the case by the coroners report of "accidental death" and you have a picture of what we face. Perhaps the death was accidental in the sense that it was not deliberate, but was it unavoidable? Was it due to faulty design, repair, alteration or installation? Would it have happened if a qualified engineer had been in charge? Will it repeat again in some other form due to lack of knowledge or foresight in planning? These questions will need a lot of review before an intelligent answer would be found. The writer is sure the best results will be obtained through increased efforts on our part to bring the general engineering field under some form of legislative control. The medical and legal professions tolerate no partial measures, so why should we?

Any attempt to introduce mandatory control will have to deal with the problem of the status of unlicensed engineers and draftsmen or designers. The EIT program definitely establishes the position of the young engineer who has declared his intention to become licensed, but what about those who have no intention of doing so? Shall we create an auxiliary which they can join and have them feel they are some part of the engineering profession or shall we exclude them entirely? In every large city, you will find that unions have partially organized some engineering departments of large industries. This is a growing trend and is a problem which we must deal with now, before the large industrial unions gain complete control. You will also find that in most large concerns, the engineering dept. is the first to feel the effects of a recession through layoffs and dismissals. Are members of engineering and allied professions mere skilled labor which can be hired and fired at will or shall we take steps to command industries respect? I do not intend to discuss the merits or wisdom of unionism or organization in engineering, but only to indicate that united efforts are more successful than individual efforts in gaining economic and social benefits for any group.

There are more points to cover, but perhaps this letter will awaken enough interest to have others bring them out. An incident which occurred a short time ago may be of interest to the profession. I was the guest of one of the largest industries in this area, and the largest in its field. After a plant inspection, we had a dinner at which I sat next to the Personnel Manager. The gentlemen across the table began a discussion on plant union problems, so I brought up the question of the status of the engineering dept. The Personnel Manager stated that the engineering staff were organized under the CIO. I then asked about the Professional Engineers and he wanted to know what they were. I explained that there were state laws regarding practice of engineering and examinations had to be passed for registration. This was the first time he ever heard of Professional Engineers or knew there were laws governing their conduct. There are many more cases like this and perhaps our public relations and educational program will break down some of these barriers of ignorance.

JOHN R. QUINZIO, P.E.,
N. Tonawanda, N. Y.

Committee

(*Continued from page* 11)

If not followed, the special sub-committee will in all probability fail to act, and the proposal dies a natural and easy death.

4. Dividing the work. Most committee chairmen find difficulty in dividing the jobs around. Many give up entirely, and try to do it all themselves.

The successful solution is for the chairman to arrange personally the handling of routine matters, such as typing, duplicating, mailing, keeping track of accounting figures, etc. However, the "thinking" and "contacting" jobs should be divided up among the members of the committee. It then is surprising to find out how many routine matters get taken care of voluntarily by the "thinkers" and "contactors." It is well to remember that an engineer is honored when he is asked to "advise" or "consult and submit an opinion," but when he is asked to "write a report," he visualizes weary hours of tiresome work.

Of course, on all delegated work, deadlines should be set and those responsible should be followed up. The follow-up can take the tactful form of, "In connection with that study that you are making for our meeting next week, I had a thought that might help you . . .," or "Someone was asking me about that parking problem that you are working on, and I got to wondering what you thought of the idea of . . ."

Once the delegation of projects is worked out smoothly, the results of the committee's efforts will be far greater than any one man could possibly accomplish.

5. Dealing with the board of directors. Committee chairmen in engineering societies have to deal with boards of directors to (1) make reports, and (2) get permission or money for major undertakings.

Reports should be written, short, and crammed with facts. The usual report should not take more than three minutes to read. If more material has to be presented, such as details or figures, they should be reproduced in advance and mailed to the directors a few days before the meeting. This gives the directors a chance to carefully study the facts, and say at the meeting, "Yes, I have been keeping in touch with this development right along, and I know that . . ." (a speech that starts like this is as good as an "Aye" vote!)

On most matters where major questions of policy are not involved, or the proposed expenditure of money is nominal, the committee chairman does well to proceed without asking for permission first. However, he should report briefly afterward on what he has done. If a committee is continually announcing new successes, its authority on minor matters will seldom be questioned.

Boards of directors are either cooperative, or difficult, or some stage in between. With a cooperative board, it is only necessary to demonstrate the reasonableness of a plan to get it approved. To show various methods of getting approval on major expenditures and controversial issues, let us assume that the board is a difficult one, and see what steps a committee chairman would take to get an extremely controversial proposition across:

A. Just as soon as the plan gets into the formative stage, the directors, as individuals, should be brought "in" on it, by circular letter, or personal contact.

B. The directors' opinions on the matter should be sought. A simple questionnaire is usually effective . . . the return may be only 40 per cent; but the psychological effect is tremendous, provided the questionnaire is worded correctly. The returned questionnaires give clues to the type of opposition to be expected.

C. Go over the plan personally with each of the directors that may be expected to oppose it. This should be done while the plan is still fluid, and can be changed. Incorporate the directors' suggestions wherever they will not alter the basic effect of the plan.

D. Try to get the committee to approve the plan, plus an alternative plan. This is usually necessary anyway to get the plan approved by the committee without taking hours of arguing to squelch the ever-present minority. Going before the directors with two plans places the committee chairman in the objective (and psychologically comfortable) position of being able to discuss facts as a non-partisan consultant.

E. Reproduce the final proposal and mail it to all officers and directors several days before the meeting. Then determine by telephone how the votes are going to line up.

F. At the meeting, the report may be read or summarized, whichever seems more advisable. The chairman should always maintain an objective viewpoint ("Let us judge this on the basis of what is for the best interest of the society," etc.) which enables him to avoid the terrific let-down that could come from having the plan altered or rejected.

G. The permanence of a "pocket veto" is easily avoided. If a committee of directors is appointed to study the matter, ask for an opportunity to provide background material for the committee. If action is postponed, ask for a temporary advisory committee of specific officers and directors to help you advance the proposal so that it will be up to date for the next meeting.

6. Publicizing. A committee chairman should pass up no opportunities for publicizing his committee's activities. Releases should be prepared for the newspapers on all important accomplishments. Names of committee members should be liberally sprinkled in these releases. Generally speaking, the committee chairman does better for himself by avoiding his name in publicity where it does not add to the news value of the release. Often the best personal publicity comes from not having had any.

The society's publication can usually be persuaded to carry the complete listing of the committee at least twice a year. The chairman or president will usually allow a one-minute report on an outstanding accomplishment at the society's monthly meeting.

Such publicity works marvels for the committee's morale, even though engineers are supposedly modest people.

Conclusions. The reader will undoubtedly conclude that being a committee chairman involves a lot of work and expense. However, it will be surprising to find how many hands there are to do the work in a committee that is stepping ahead and accomplishing things.

There are many rewards for the chairman of a really successful committee. First there is the very pleasant satisfaction that comes from a job well done. Then again, the chairman of a successful committee soon finds himself in more responsible society positions, with attendant boosts in professional prestige. And finally, successful accomplishments of this type always look good on the employment record.

References

1 Minutes of the Board of Directors, Engineers' Society of Milwaukee, October, 1944.

Bibliography

"The Technique of Executive Control" by Erwin H. Schell. McGraw-Hill Book Co., Inc., New York. 1942.

"The Unwritten Laws Of Engineering" by W. J. King. Mechanical Engineering. May 1944.

"Psychology Applied" by Dr. George W. Crane. Northwestern University Press. 1941.

What They're Saying

(*Continued from page* 17)

products, which were physically valuable, the time was squandered. Speculative thought was dismissed as of no value and dangerous. To develop this thought a bit further, most of us who are old enough will recall the difficulty that the youth of a generation or so ago experienced when seeking recreation and diversion.

We have introduced Western techniques throughout the entire earth and are in the midst of continuing the process at a much augmented fashion. To the chagrin and consternation of many, opposition is snowballing to our efforts and kind intentions. Strong doubts are being expressed—whither are we bound—what for—why? "*Homo occidentalis* has been overtaken by a mistrust of his own *élan* and an uncertainty about his own future which are ominous symptoms," according to Toynbee. Those who have read Toynbee know his views: our industrialism has progressed too fast, far beyond man's ability to digest its bounties.

The engineer is an extremely important individual in our society. But although we may be aware of his gifts there can be no doubt that his fruits have often been exploited to man's harm. There is ever present the danger that we are not ethically prepared to receive and to understand his great contributions to society. Without stopping to evaluate his worth, too many are prone to assume that whatever the engineer produces comes under the category of progress. There is an inclination to make a fetish of the word "progress" without analyzing the significance or connotations implicit in the individual instances.

Industrial activity and property accumulation are the accepted principal bases upon which social stratification is evaluated in our society. Moreover, there is the slow but distinct insinuation of the military, as opposed to the civilian, forces into our governmental and private organizations. We find generals, or admirals, who are ambassadors, college presidents, corporation heads, and so on. By no stretch of the imagination can their influence be of the contemplative variety; rather it is supplementary to the impersonal control of industry over mankind. We should realize the implications of absorbing the military into nonmilitary positions. Do we as a society desire the trend to continue?

As a nation we are passing through an extremely important and critical time. Must communism slay us, or shall we so expand our horizons that the peoples of the world will be anxious to follow our leadership? Today we attract them through the various economic plans, because our industrial society emphasizes accumulation with the necessary freedom to pursue further accumulation. But suppose that, in addition to our purely utilitarian way of life, we abounded in philosophy, in great art, in masterful music, in writers for the ages. Would not then the response to our democratic way of life be enthusiastically wholehearted rather than merely a marriage of convenience? In short, would not the encouragement of contemplative pursuits make us a greater and happier people, with many more real friends in the world of nations than now appears to be the case?—*Julian A. Joffe, The Technology Review, November*, 1950, *official organ of the M.I.T.*

ENGINEERING—PROFESSION OR TRADE? . . .

New light is cast on the old question as to whether engineering is a profession or trade by the U. S. Supreme Court's decision in a case relating to fee schedules set up by real estate boards.

Because real estate operators—like engineers—sell services rather than commodities, the first question before the court was whether supplying such services constituted a trade, as that term is used in the prohibitions against restraints on trade in the Sherman Act.

The Supreme Court concluded that it did constitute a trade. And in stating why it did, the court made observations that may be applicable to engineering services.

This decision of the Supreme Court also is of importance to engineers because it related to schedules of minimum fees that are set up by local real estate boards and which members are required to observe. The court found that the system under which the Washington Real Estate Board issued its schedule constituted a violation of the Sherman Act.

Since the high court handed down its decision (May 8) the U. S. Department of Justice has announced that the decision will be used as the basis for action against organizations of architects and engineers that set up schedules of fees. The charge will be that the use of these schedules is also a violation of the Sherman Act (ENR May 18, p. 23).

From a review of this decision and of preceding legal dictum, it appeared logical to conclude that, from the purely legal point of view, only a small part of what engineers do falls into the professional classification. When a consulting engineer is called in for the sole purpose of rendering an opinion based on his knowledge of engineering, the courts could be expected to hold that his work on that engagement is professional. But as soon as he undertakes to render a service, to prepare designs and specifications, his work would be considered a trade—in the eyes of the law.

The Supreme Court had before it an appeal from a decision of the United States District Court for the District of Columbia in THE UNITED STATES OF AMERICA V THE NATIONAL ASSOCIATION OF REAL ESTATE BOARDS ET AL. In the district court, the Department of Justice had charged the National Association of Real Estate Boards, its executive vice president, the Washington Real Estate Board and 15 of its members with violation of the Sherman Act by conspiring to fix commission rates for the members. (The national association had in its code of ethics a provision that schedules of fees set by local boards should be observed, and the Washington board had a provision in its code stating that "brokers should maintain the standard rates of commissions adopted by the board, and no business should be solicited at lower rates.")

The national and local boards as well as the officers and members covered by the indictment were acquitted by the district court in both the criminal and civil action. Subsequently, the Department of Justice appealed the district court's decision in the civil suit to the Supreme Court. The high court concluded that there was not sufficient evidence against the national board and its executive officer to warrant conviction, so it let their acquittal stand; it concluded, however, that the case against the Washington board was sufficient to warrant conviction.

A basic question in this case was whether the business of a real estate agent is a "trade" within the meaning of the Sherman Act, or whether it is a type of service that is outside the provisions of that act.

On that point Justice Douglas, who delivered the opinion for the Supreme Court, said:

"Members of the Washington board are entrepreneurs. Some are individual proprietors; others are banks or corporations. Some have no employees; others have large staffs. But each is in a business of his own. The fact that the business involves the sale of personal services rather than commodities does not take it out of the category of "trade" within the meaning of Sect. 3 of the act. The act was

aimed at combinations organized and directed to control the market by suppression of competition "in the marketing of goods and services."

The Supreme Court's statement that members of the Washington real estate board are entrepeneurs, each with a business of his own, and its observation that "the fact that this business involves the sale of personal services rather than commodities does not take it out of the category of 'trade' within the meaning of the act" would seem to indicate that the court would reach a similar conclusion concerning the practice of consulting engineers and architects, if and when the question is placed before it. — *Engineering News-Record, September,* 1950.

IS THE ENGINEERING GRADUATE EDUCATED?

The ordinary college course leading to a Bachelor's Degree is approximately four years, and educators have a rather difficult task within that time to pour into a student what might be considered an education. In an engineering college, the task is even more difficult than in an arts college. If an engineer is to become a reasonably well-rounded man and not merely a highly specialized technician, he must have a knowledge of the arts and sciences, he must be able to express himself, and he must learn how to think in general. In addition to that, the engineer must have enough education in his specialty in order to qualify to enter the profession.

A compromise has been made in that the college course over the first two years, including basic arts and sciences and the fundamentals of engineering, is essentially the same for all branches of the profession. In the third year, the courses begin to spread out, but the mechanical engineers and the electrical engineers take courses that are very nearly alike. Even in the fourth year, there are many courses that are common to all branches of the profession. In other words, there is very little time to get more than a mere smattering of the specialties that are implied in the 90 different branches of the engineering profession which are important enough to form the basis of some professional engineering society.

Does this mean that at the end of four years of college, an engineer is not quite educated, not quite competent in the specialized profession that he is to enter? I think, perhaps, it does. This statement in no way belittles those persons responsible for our college education. It merely points out the fact that four years out of a full life of three-score-and-ten is entirely too short a period in which to get an education.

What is there yet to learn after graduation that is a necessary part of our development? A new graduate must determine which particular specialty he will follow. After he has selected his specialty and found a position, he will discover that there is a great deal to learn about that particular field. It seems to me to be the job of the employer to teach the new man how to perform in his new field.

Sometimes this training comes as a bit of a jolt. A man has been going from one course to another in widely different fields in college and suddenly discovers that all of his interests are concentrated on one particular specialty. More than that, his efforts are confined within the organization and he may not have much opportunity to see how these activities affect others outside his industry. Right here is where many a good many succumbs to inertia. When he was in college, his courses were assigned to him and they were graded, and he knew whether he was progressing. On the job, most employers see that he performs the assigned task properly and that's all. Beyond this, it's up to the man.

We, as individuals, have an obligation to ourselves to use a reasonable portion of the mentality with which we were endowed. No man is really happy when he is using a small fraction of his abilities. Should we not, then, use some of the 16 hours of the day for which we are not paid to learn a little something outside our working world? Perhaps we should read a little literature, go to new plays, or learn how to be helpful to our neighbors in community affairs. All this tends to broaden our knowledge, make us better citizens, and make us more satisfied.

Your engineering society can be a very important factor in another part of your general education. Not the least of education is the ability to get along with other people. To do so, we must work with them rather than against them, and the engineering society is a remarkably helpful place in which to learn this. If you have a man on your payroll, you may order him to do something and he must do it because you have the power to compel him. But if you are working in an engineering society, you can only get people to do things because they like to do them, and because they wish to work with you. Nothing develops the ability to get things done tactfully, gracefully, and pleasantly quite so much as working in this type of volunteer organization where men work together because of mutual respect and a spirit of service.

Each time I read a technical paper on a subject with which I am not familiar and give it thorough study, I get a little feeling of uplift that here is something new and interesting that I should like to know more about. And here is something for which I can admire a fellow engineer who has had the ability to come forward with a new and valuable idea. It's just like being cooped up in a small room until we discover a door which can be opened. We open it into a new room of knowledge, look around, and find it a higher and wider room, and leading out of that are several doors into other branches of knowledge. No matter how far we go, we find higher ceilings and broader horizons, and more of the joy of living which comes with not only being better trained but with the knowledge and anticipation that we have much to learn and much farther to go to become educated men.—*T. C. LeClair, President, AIEE Electrical Engineering, November,* 1950.

Stake

(*Continued from page* 9)

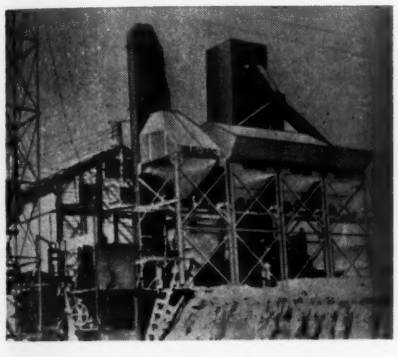
mental rights as being inalienable. In these perilous times professional engineers must recognize their greater responsibilities in upholding our fundamental rights. It is not enough to design structures and control the forces of nature. The professional engineers must contribute many of their talents to this field of human engineering. We must work more for the benefit of the continuation of our American way of life.

OURS is the greatest nation in the world. With only six per cent of the land area, we own 50 per cent of the world's gold. We produce 35 per cent of the coal, 46 per cent of the electric power, 60 per cent of the petroleum; we consume 14 per cent of the food and 50 per cent of goods. Our productive capacity combined with our way of life makes this the greatest nation in the world. We must keep it that way. We can't do so by an indifference which might permit a small part of our population to dictate our lives for us. Engineers can do their part more effectively by thinking collectively about the resultant effect of ideologies, the practice of which will leave their imprint on us and all future Americans. Precious things are for those who can prize them. One who knows a pearl must point it out lest some vulture mistake it for a grain of corn. We have a pearl. We should guard it zealously.

What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional engineers. When writing manufacturers, we will appreciate your mentioning the American Engineer.

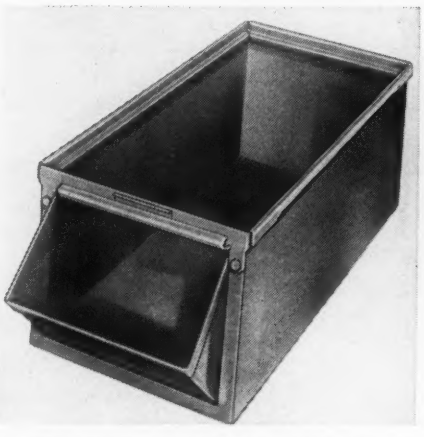
● A solution to aggregate and bulk cement storage and batching has been reached by Gar-Bro Manufacturing Company of Los Angeles, with the announcement of a new Unit Batch Plan incorporating numerous combinations and applications. The units, built in a capacity to handle the charging of one yard mixers or smaller, come in single or dual aggregate units which may be hooked up in series with a bulk cement bin unit and with an Auxiliary Cement Silo if additional storage is required. Upon the completion of a particular job the units may be rearranged to meet other conditions.



A weigh hopper, mounted on a double railtrack, travels from bin to bin without interruption and may be set to dump from either side or either end. The new Unit Batch Plant features bin frames mounted on skids or demountable wheels for easier transporting. An added feature is self-closing bin gates. The versatility of the Unit Batch Plant materially reduced aggregate and cement storage costs and reduces equipment inventory.

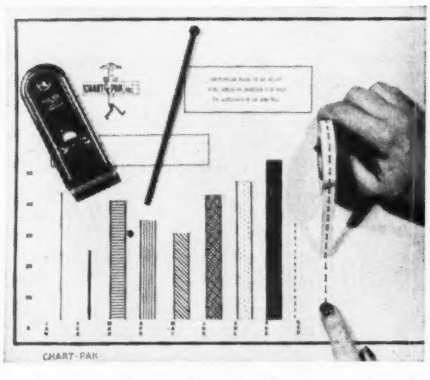
For further details, write Gar-Bro Manufacturing Co., 2416 E. 16th Street, Los Angeles, California.

● The Lyon Metal Products Co., Inc., of Aurora, Illinois, announces the Style RB Steel Shop Box. The RB boxes can be stacked on the floor and used for regular bin type storage. Hopper end permits easy removal of contents from boxes even when stacked. The front top rail is rounded for use as a handle. The opposite end has a drop handle.



This box is available with green finish or without any finish. Fire hazards are eliminated—steel boxes will not absorb oil or grease, and are not affected by weather conditions. For further details write Lyon Metal Products, Inc., Aurora, Illinois.

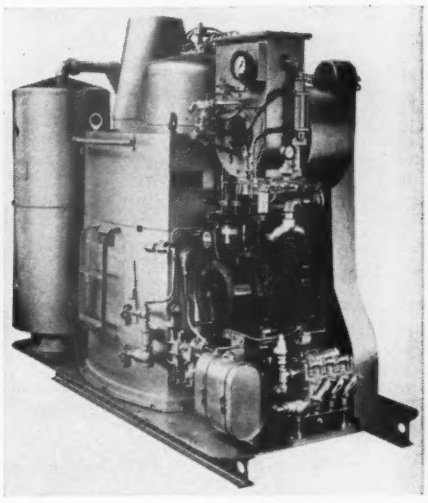
● Use of the prefabricated "draftsman drawn" Chart-Pak products eliminates much of the drudgery in drafting. This new handy method consists of plastic board with grid lines in non-photographic blue, the necessary tape for bars to show comparisons, and rectangular boxes for organization and flow process charts.



For continued use, the completed chart can be photo-offset or photostated, the acetate gummed tapes peeled off, and a new chart made on the board from the rolls of tape provided. Tapes and rectangles come in a kit with tape-knife and cleaner. Corrections and changes can be made simply by removing the bar or rectangle in question and replacing it.

Address all inquiries to Chart-Pak, Inc., Dept. 7, 104 Lincoln Avenue, Stamford, Connecticut.

● Pictured here is a new portable Vapor Steam Generator for industry which supplies large quantities of high pressure steam for short or sustained periods for pile-driving, asphalt plants, chemical processing, et cetera.



This machine develops 200 pounds working steam pressure in two minutes from cold water and makes over 3500 pounds of steam an hour, at 75 to 300 pounds steam pressure. This is accomplished by hot gases from an efficient forced draft fuel-oil fire wiping over a patented 575 foot steel coil.

For further information concerning this product, write the Vapor Heating Corporation, 80 East Jackson Blvd., Chicago 4, Illinois.

● Synchro-Start Products, Inc. has just developed a new overspeed governor for safety shutdown of internal combustion engines and machinery. It is adjustable to decrease or increase the shut-down speed while running. Model GFA comes equipped with automatic re-set and GFM with manual re-set.

New features of this governor are —sealed steel ball bearings with extra lubricant reservoir sufficient for life run — and a standard take-off for heavy duty tachometer drive for use with a flexible shaft.

This new governor is of full metal construction, equipped with mounting bracket, five inches in height, and approximately 3 pounds shipping weight. It is now being tooled for production and expected deliveries to start in December, 1950. Models GFA and GFM augment the line of GP and GK overspeed governors for standard SAE drives which have been in production many years.

For further information write to Synchro-Start Products, Inc., 1046 West Fullerton Ave., Chicago 14, Illinois.

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